Cascade County Small Prospects Project
Cascade County, Montana

Final Report
MT AMRB 90-012

Robert Peccia & Associates, Helena, Montana
March, 1991

FINAL REPORT

CASCADE COUNTY SMALL PROSPECTS PROJECT

MT AMRB 90-012

Cascade County, Montana

T17N R3E, Sec. 20, 30 & 36
T18N, R5E, Sec. 7
T18N, R6E, Sec. 2
T19N, R4E, Sec. 24, 25 & 35
T19N, R5E, Sec. 7, 19 & 30
T19N, R6E, Sec. 36

March 1991

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1. INTRODUCTION

1.1 Project Objectives

The objective of this project was to reduce or remove the adverse effects of past coal mining activity at eight separate project locations southeast of Great Falls in Cascade County, Montana. The major items of work performed varied according to individual site reclamation requirements but include one or more of the following: topsoil removal and replacement, preparation of spoil deposition areas, closing adits, moving and placing mine spoils, installing drainage structures, revegetating disturbed areas, removal and disposal of debris, constructing a well and installing a new pump and piping, construction of an infiltration pond and installing fence.

The Schedule VIII - Centerville 'C' site was deleted from the project by Change Order No. 1. The Lorang Reclamation site and Johnson Field Neutralization site were added to the project by Change Orders No. 1 and 2.

1.2 Site Description

Centerville Site

The Centerville site consisted of six non-contiguous mines located on the west side of the Stockett Highway in the SE4 of Section 24, NE4 Section 25 in T19N, R4E and in SW4 Section 19, NW4 Section 30 in T19N, R5E. The adits, subsidences and associated spoil piles were situated on the steep slope of the north-south trending gulch approximately 0.8 miles south of Centerville. Numerous waste piles scattered around the site, particularly on the lower, flatter slopes, indicated earlier coal load-out locations. Abandoned mine roads provided access to the waste piles and adits.

Chicken Coulee Site

The Chicken Coulee site is 6.5 miles southeast of the Eden Bridge in the SW4 of Section 36, T17N, R3E. A collapsed adit with associated waste pile and a subsidence immediately uphill of the adit comprised the remnants of past mining activity. Seasonal adit drainage in contact with the coal waste pile had created a devegetated area below the mine. Access to the site is difficult due to spring activity, rough road conditions and the remote location of the prospect.

Cottonwood Creek Site

The Cottonwood Creek site is located 2.5 miles south of Stockett, Montana in T18N, R5E section 7 (SW4, SE4). The adit and waste pile were situated on the south slope of a ravine approximately 1,000' east of the Cottonwood Coulee Road. Also associated with the mine disturbance were the remnants of a powder magazine, mule barn and debris from old mine buildings. Mine drainage reported to be flowing from the adit was not confirmed.

McKamey Ranch Sites

The three scattered sites comprising the McKamey Ranch reclamation site are located near the Smith River in T17N, R3E. Site A is located in Section 30 (NE4, NE4) on a steep slope approximately 1,000' west of the McKamey residence. The single prospect was in a rock outcrop and the adit was partially open. Coal spoils at the site were insignificant and required no reclaiming. Site B is in Section 20 (NE4, NE4) approximately 1 1/4 miles northeast of the ranch. The two adits at this site were partially open with no significant spoils accumulation. Site C is located in Section 30 (NE4, SE 1/4). The single adit at this site was partially opened and situated in an area heavily overgrown with trees and brush approximately 3/4 mile from the ranch. Access to all sites was limited.

Neil Creek Site

The Neil Creek site is located in a gulch 3/4 of a mile south of Montana Highway 87 adjacent to a private road. The private road intersects Highway 87 1.9 miles west of Armington Junction. The two adits are situated on a steep slope in T18N, R6E, Section 2 (NE 1/4) and T19N, R6E, Section 39 (SE4). The adits were partially open.

Number Five Coulee Site

The Number Five Coulee site is located 3.1 miles south of Centerville in Number Five Coulee, T19N, R4E section 35. The site consists of five noncontiguous prospects. The adits are collapsed and have subsidences above them. Associated with the mines are four waste piles and scattered mining debris.

Tracy Site

The Tracy site is located 1.25 miles northeast of Tracy, Montana at the base of a north slope in T19N, R5E in Section 7. There are two adits that are partially collapsed at the toe of the slope. Six waste piles, mine debris and mine drainage are associated with the site.

Miners Centennial Park Well

The location of the well is in the Miners Centennial Park, Centerville, Montana in T19N, R5E, Section 19 (NE4).

Lorang Site

The Lorang site is located in T17N, R4E Section 4 at the base of a hillside on the north bank of Ming Coulee. The site is approximately 1.5 miles northeast of Eden and is accessed from Frank Road. The site consisted of a single open adit and small waste pile. The site was added to the project by Change Order No. 2.

Johnson Field

The Johnson Field site is located in T19N, Section 7 below the Johnson Wetlands. Approximately 8 acres of a cultivated field was barren due to low pH soils, a result of acid mine water accumulation before the wetland was constructed in 1987. This site was added by Change Order No. 3.

1.3 Maps Showing Mine Locations

Maps showing the mine locations are included in Attachment 9.

2. RESPONSIBLE PARTIES

2.1 Prime Contractor

The prime contractor was selected by submitting the lowest bid:

Shumaker Trucking & Excavating
P.O. Box 1442
Great Falls, MT 59403

2.2 Reclamation Engineer

The reclamation design and engineering plans were prepared by:

Hydrometrics, Inc.
2727 Airport Road
Helena, MT 59601

2.3 Quality Control Inspection

The original plans and specifications for reclamation of the Cascade County Small Prospects AMR Project were engineered and prepared by Hydrometrics, Inc. Prior to construction of the project, a change in consultants occurred and the project was assigned to Robert Peccia & Associates. The contract administration, construction observation and project activity documentation was consequently performed by RPA personnel.

Resident Engineer, Dale Wells
Robert Peccia & Associates
P.O. Box 5653
Helena, MT 59604

2.4 DSL-ARMB Coordination

The AMRB Project Manager was Dale Herbort.

3. CHRONOLOGICAL LISTING OF EVENTS

3.1 Pre-bid Conference

The pre-bid conference agenda was presided over by representative(s) from DSL-AMRB and Hydrometrics, Inc. on June 15, 1990. A conference summary is unavailable for this report.

3.2 Bid Date

The bid date for this project was June 28, 1990.

3.3 Three Lowest Bids

Only one bid was submitted for this project:

Shumaker Trucking and Excavating
P.O. Box 1442
Great Falls, MT - bid amount $148,336.46

3.4 Contract Award

The contract was awarded to the lowest bidder, Shumaker Trucking and Excavating. A copy of the Bid Proposal is in Attachment 1.

3.5 Notice of Award

The Notice of Award was dated on July 29, 1990. A copy is include in Attachment 4.

3.6 Notice to Proceed

The Notice to Proceed was dated on July 30, 1990. A copy is included in Attachment 4.

3.7 Preconstruction Conference

The Preconstruction Conference agenda was presided over by representative(s) from DSL-AMRB, and Robert Peccia & Associates on July 30, 1990. A listing of individuals in attendance, the conference agenda and a meeting summary is included in Attachment 4.

3.8 Construction Start-up

Project construction was tentatively scheduled to begin on August 6, 1990. Actual construction began on August 8, 1990.

3.9 Change Orders and Approval Date

Three Change Orders were approved on this project resulting in a total contract price reduction of $10,838.96. Change Order No. 1 was approved by AMRB on August 6, 1990; No. 2 on September 28, 1990; and No. 3 on February 24, 1991. Copies of the project Change Orders are included in Attachment 2.

3.10 Work Stoppages

A work stoppage was authorized during the Preconstruction Conference to allow a 30 day suspension of contract time between project work phases. The temporary work shutdown was issued in order to accommodate the contractor's schedule and was in effect from September 12, 1990 to october 15, 1990.

3.11 Payment Requests

Three Pay Requests were submitted by the Contractor and approved by DSL-AMRB. Copies of the Pay Requests are included in Attachment 3.

Firm	Amount	Date
Shumaker Trucking & Excavating	$62,450.34	9/19/90
Shumaker Trucking & Excavating	$30,943.68	11/15/90
Shumaker Trucking & Excavating	$44,103.48	1/10/90 (Final)

3.12 Substantial Completion

The Certificate for Substantial Completion was issued effective December 15, 1990. Final AMRB project approval was delayed pending a final inspection. The final inspection was completed on February 12, 1991, and the project officially approved for close out. A copy of the Certificate for Substantial Completion is included in Attachment 4.

3.13 Final Project Cost

The final cost of the project, including Change Order adjustments, was $137,497.50.

4. CONSTRUCTION

4.1 Description of Project Plan

The purpose of the project plan was to reclaim disturbances from past coal mining activity at eight project sites southeast of Great Falls in Cascade County, Montana: the Centerville site, the Chicken Coulee site, the Cottonwood Creek site, the Neil Creek site, the McKamey Ranch site, the Number Five Coulee site, the Tracy site and the Miners Centennial Park Well. Supplementary work was added to the project and approved by Change Order, including the addition of the Lorang site and the Johnson Field site.

The remedial objective of the reclamation design was site specific and determined by the nature of the mining disturbance. The major items of work performed on this project included topsoil removal and replacement, preparation of spoils deposition areas, closing adits with riprap seals, disposal of mine spoils and debris, installation of drainage structures, construction of an infiltration pond, site revegetation and fence installation. The project plans also included the construction of a water well and neutralization of acidic soils.

4.2 Major Equipment List

The following equipment was used by the Contractor or the Subcontractor to complete the project requirements:

Type	Make/Model	No. on Job
Dozers	Caterpillar D6-C	1
Dozers w/bucket	Caterpillar 977-K	1
Backhoe	Case 580	1
Front-end Loader	Caterpillar 966-C	1
Farm Tractor	Case 955	1
Grain Drill	6' Brillion	1
Farm Tractor	John Deere	1
Hay Blower	Vermeer Haybuster	1
Rotary-Air Well Drill	Gardner Denver HPS	1
900 CFM Compressor	Ingersoll-Rand XHP-900-w-Cat	1

4.3 Contractor Employees

During reclamation activities Shumaker Trucking & Excavating employed 3 to 7 men, depending on the nature of the work, including: 1-supervisor, 2-equipment operators, 2-laborers, and 2-truck drivers.

The well drilling subcontractor, Boland Drilling of Great Falls, MT, utilized 2 men: 1-equipment operator/supervisor and 1-equipment operator/laborer.

4.4 Construction Activities

Cottonwood Creek Site

Construction activities commenced at the Cottonwood Creek site on August 6, 1990. The contractor proceeded to demolish the remnants of the mule barn and dispose of the debris in the designated location above the ranch buildings. Two dump trucks were used to haul the wood and stone debris to the disposal site. Following demolition and disposal of the mule barn, powder magazine and other mine related structures, reclamation of the adit and waste pile proceeded. The adit was probed, a drain system installed

and the adit opening adequately sealed. Following spoils removal, lime was applied over the waste removal and deposition area. Ten tons of lime were incorporated and topsoil replaced on a .36 acre area. Fence was constructed on August 22. Fertilizer application, seeding and mulching was subsequently completed on October 23, 1990.

McKamey Ranch Site

Concurrent with construction at the Cottonwood Creek site, adit closures were completed at the McKamey Ranch site. The contractor employed two laborers to hand-lay riprap in four open adits. The riprap was generated on site with steel pry-bars. No other work was required at this reclamation site.

Neil Creek

Work proceeded at the Neil Creek site immediately following completion of the adit closures at McKamey Ranch. On August 8, 1990 two laborers were utilized to close two adit openings with hand-laid riprap. The riprap was produced on site with pry-bars. No other work was required at the Neil Creek site.

Chicken Coulee

The contractor mobilized equipment to the Chicken Coulee reclamation site on August 13, 1990. The landowner limited equipment to two 4-wheel drive trucks and two rubber-tired pieces of equipment. The landowner also specified a two-day work limit for completion of the site reclamation. These requests were made due to the extremely rough access, spring activity across the access road and past trespassing problems.

Reclamation of the site proceeded with removal and stockpile of coversoil from the adit cut and subsidence area. The two areas were enlarged to allow deposition of the spoils pile. After disposal of the spoils, lime was applied and incorporated over the disposal site, devegetated areas and areas formerly covered by spoils. An evaporation basin was also constructed to impound the seasonal drainage from the seeps on the adjacent slopes. Topsoil was replaced on all disturbed areas and equipment removed from the site on August 14. Fencing was completed concurrently with the fertilizing, seeding and mulching on October 22, 1990.

Number Five Coulee

The objective of the Number Five Coulee site was to close open adits and dispose of waste piles at three abandoned mine sites. Work began at this reclamation site on August 15, 1990.

Number Five Coulee south sites consisted of two prospects. After probing the adits to determine the extent of the openings, no adit closure was considered necessary. Coversoil was removed and stockpiled at each prospect and deposition areas excavated to accommodate the waste pile disposal. Lime was delivered to the site and incorporated at a rate of 21.5 T/A. Topsoil was replaced over the disturbed areas and the equipment mobilized to the Number Five Coulee north sites approximately one mile away. Fencing was subsequently completed and fertilizer, seed, and mulch applied on October 25, 1990.

Work at the north site proceeded with closure of seven prospect openings with hand-laid riprap. A disposal area was excavated at the base of the largest spoil pile and the excavated material stockpiled separately into topsoil and coversoil piles. All spoils were disposed of in the disposal area and 20 T/A lime incorporated on the .25 acre site. Coversoil followed by the topsoil was replaced and graded to conform with the adjacent slopes. Seedbed preparation, fertilizing, seeding, and mulching was completed on October 26, and 743 LF of fence erected around the site.

Centerville Sites

The contractor mobilized equipment to the Centerville sites on October 21 and began reclamation of the southern-most mine. A disposal site was constructed at the base of the pile and the excavated soil stockpiled separately into topsoil and coversoil piles. A large subsidence above the adit was also excavated and the adit opening enlarged to accommodate spoil disposal. Approximately 900 cubic yards of coal waste was dozed into the prepared disposal areas and lime incorporated at 10 T/A. Coversoil and topsoil was replaced and graded to conform to the adjacent contours.

Similarly, reclamation proceeded at the other five mines sites. At each mine a disposal site was excavated and the spoils dozed into the prepared deposition area. A common disposal area was constructed to facilitate spoils removal at the three north sites and to provide an adequate coversoil source. Spoils were hauled to the common disposal area by truck. During this period, on August 24, the landowner instructed that a particular mine be omitted from reclamation due to the location and terrain. The mine is situated at the head of a short, steep drainage and is not visible from the road. An open adit in the same location was hand closed with riprap, otherwise the landowner's instructions were observed. Lime was incorporated at the specified rate of 10 T/A and coversoil replaced. Fertilizing, seeding, and mulching was completed on October 31 and 4,451 LF of fence constructed.

Tracy Site

Equipment proceeded to the Tracy site on August 28, 1990. The objectives at this site involved the disposal of debris and waste piles, closure of an open adit and construction of an adit drainage system with retention pond.

Reclamation work began with preparation of the adit and subsidence for closure. The subsidence was excavated and spoils placed in the hole. The adit was closed with hand-laid riprap.

At the main mine site, work involved in the construction of the adit drainage system included: installation of a riprap pad, 250 gallon stock tank and overflow system at the outfall; excavation and embankment construction of the retention pond; trench excavation and installation of 4" diameter SDR 35 PVC pipe as an outfall; construction of the inlet filtration and collection system and, as specified in Change Order No. 2, installation of an auxiliary 1,000 gallon stock tank with piping and valves.

Following construction of the drainage system, the adit area was prepared for spoil disposal over the infiltration-collection pipe. The spoils were dozed into the cut and graded to conform with natural contours. Lime was incorporated over the site at 10 T/A and topsoil replaced on disturbed areas. Fertilizing, seeding, and mulching of the site was completed on November 2 and 1,221 LF of fence constructed.

Miners Centennial Park Well

The Centennial Park Well was constructed in Centerville by Boland Drilling of Great Falls, Montana. Drilling was scheduled to begin on November 1, 1990 but delays created by equipment problems prevented work from beginning until November 8.

The contractor drilled a 12.25" hole to accommodate the 8" steel casing and allow a 2" annulus for grouting. It was mutually agreed that the steel-cased, 12" hole would be extended to a minimum of 10' into the Madison Limestone formation and the remainder of the well would be cased with 6" nominal blank casing and screen. The minimum depth was reached at 140' on November 8 and the steel casing installed. Grouting of the annulus was completed on November 12 and a 36 hour curing time stipulated prior to allowing drilling to continue. Drilling resumed at 140' with an uncased 8" hole. Sporadic loss of circulation occurred from 148' to 188', then total loss of circulation was experienced to 201'. This was presumed to be caused by large cavities and numerous voids. The contractor elected to grout the hole to fill the voids prior to further drilling. Well development was performed to determine if an aquifer had been encountered

but circulation remained inconsistent. Approximately 7 cubic yards of grout was required to fill the 8" well. After a 24 hour curing period, drilling resumed to remove the cement grout from the hole. Circulation was restored sufficiently to continue drilling but the peculiar absence of grout cuttings from the circulation was noted from 160' to 180'. Speculation was that a heavy water bearing strata existed in the voids zone and the grout had been washed away. Well development was performed to determine the yield of the well at the 200' depth and yield consistently measured at 20 gpm. Drilling was allowed to continue to the 280' depth where a large volume of water was encountered. Well development and measurements detected a yield estimated at 100 gpm. The driller was instructed to extend the well to 300' and complete a four hour well development at that depth. Yield estimates were determined to exceed 150 gpm during this period. The drill stem was removed from the well and the static water level measured at 168'. Preparations were made to complete the pump installation and perform a 24 hour yield and draw down test.

On November 27, a 6" Schedule 40 PVC liner with attached stainless steel screen was installed in the well. A 10' PVC blank was set from 292' to 302' and the 20' screen installed from 292' to 273'. Following a successful casing alignment test, the pump was installed with the intake ports set between 271' to 272', just above the top of the screen. Pump installation was completed on December 4 and the 24 hour yield and drawdown test started. Additional draw down information was supplied from selected observation wells located at the Centerville High School, the Centerville Community Water Users Associations well and the St. Pius X church well. Data obtained from the pump test and observation well measurements is included in Attachment 7. Following completion of the pump test, installation of the pitless adapter, exterior piping and valves and the landscaping was completed. Substantial site completion was December 15, 1990. A well log was submitted to the DNRC as required by State law and is also included in Attachment 7.

Lorang Site

The Lorang mine was additional work incorporated into the Cascade Small Prospect Project by Change Order No. 2. The site consisted of an open adit and small, partially revegetated spoils pile. The objective of this site was to seal the adit. To accomplish this objective, several loads of field rock were hauled from a cultivated field approximately one mile away. The adit was closed by hand laid riprap. No further work was required at this site.

Johnson Field Neutralization

The Johnson Field site was additional work included by Change Order No. 2. The site is a part of a cultivated field that is situated below recently reclaimed mine drainage sites. Mine drainage accumulation had adversely affected the productivity of the field by lowering the pH levels of the soil. The remedial objective at this site was to neutralize the acidic areas of the field through the application and incorporation of 35 T/A lime. The reclamation area was determined by gridding an area 500' x 1450' into eight 2 acre grids. The grids were each soil sampled separately and tested for pH and soluble salts. The results of the tests are in Attachment 6. The low pH area was then delineated and lime applied and incorporated. Approximately 8 acres were determined to be affected with pH values from 4.1 to 4.5. Lime supplied by Montana Limestone Company, Warren, MT was delivered and spread by the contractor. Each load was sampled and analyzed for gradation and calcium carbonate equivalent. Technical specifications 301.02 A & B directs that if the actual gradation is more than 3% below specification, the contractor shall make up the difference. Of the 280 tons of pure lime required on the site, the effective amount delivered and incorporated was 252.59 tons. Inclement weather conditions prevented the contractor from supplying the additional 27.41 tons required so a deduction from the contract amount was authorized for $1,644.60. This deduction is reflected on Change Order No. 3. Analysis of the lime supplied to the project is included in Attachment 6.

4.5 Quantities Used

The following is a list of actual quantities used (major components) to complete the project:

Item	Amount
Mobilization, Bonding & Insurance	1.0 LS
Cover Soil	4,830 CY
Probe Collapsed Adit	4 EA
Adit Seal	16 EA
Waste Pile Disposal <300'	4,433 CY
Waste Pile Disposal >300'	350 CY
Debris and Structure Removal	1,483 CY
Rock Wall Removal	288 CY
Adit Drainage System	2 EA
Provide Water	22,700 Gal
Lime	86.5 Ton
Fertilize, Seed, Mulch	8.0 AC
Farm Fence	9,869 LF
Dike Embankment	410 CY
Set up and Removal	1.0 LS
Drill for 8" I.D. Casing	300 LF
Furnish and Install 8" Casing	300 LF
Furnish and Install Well Screen	20 LF
Surge and Develop Well < 6 hrs.	1.0 LS
Surge and Develop Well > 6 hrs.	6 Hrs
Test Pump < 6 hrs.	1.0 LS
Test Pump > 6 hrs.	24 Hrs.
Furnish and Install Steel Cap	1.0 EA
Seal Grout	1.0 LS
Underground Power Source	175 LF
Drop Pipe, Water Level Tube, Cable	280 LF
Pitless Adapter, Check Valve	1 EA
Exterior Pipe, Valves	1.0 LS
Submersible Pump	1.0 LS

5. PROJECT SUMMARY

5.1 Summary of Project

The Cascade County Small Prospects AMR project was awarded to Shumaker Trucking and Excavating of Great Falls, MT on July 29, 1990. Project construction was initiated on August 8, 1990 and proceeded on schedule until September 15. At this time, the temporary work shutdown requested by the contractor went into effect. This shutdown was allowed to provide the contractor with a 30 day hiatus in the contract time until the October 15 seeding date. Construction of the Miners Centennial Park Well was also scheduled to begin at that time. Seeding and mulching of all sites was completed on November 2. The well was substantially finished on December 15, 1990

The purpose of the Cascade Small Prospects AMR Project was to mitigate the effects of past coal mining activity by reducing environmental impacts, eliminating potential hazards and restoring sites to a natural condition. The Contractor accomplished these objectives by providing effective supervision, a competent work force and sufficient equipment to satisfy the requirements of the reclamation design. Spoil disposal, lime application, topsoil replacement and site revegetation proceeded in a well-organized, systematic manner. Project supervision was attentive to individual site requirements and was cooperative through the duration of the contract.

Job costs were within the scope of the contract and were well-controlled. Change Order items for additional work affected the final project costs but remained reasonable for the work performed.

The Final AMRB site inspection was completed on February 12, 1991 to field-verify proper completion of the project. The delay between Substantial Completion and Final Inspection was caused by inclement weather conditions.

5.2 Summary of Project Costs

5.2.1 Change Orders

The original contract price for this project was $148,336.46. Three Change Orders were authorized and approved that adjusted this price. Change Order No. 1 deleted Centerville 'C' Reclamation Site - Schedule VIII - from the project, reducing the contract cost by $28,715.40 and contract time by 24 calendar days.

Change Order No. 2 allowed for additional work to progress on the Lorang Reclamation Site and added improvements on the Tracy Site as requested by the landowner. The contract price was increased by $5,670.00 on Change Order No. 2.

Change Order No. 3 authorized the repair of a residential water problem alleged to have been caused by a past reclamation project. The cost of this concession was $500.00. Change Order No. 3 also provided for additional work to be performed on a soil neutralization project near Tracy. The cost of the work with subsequent quantity adjustment was $15,155.40. Also, Change Order No. 3 included quantity adjustments in order to close out the contract. Quantity adjustments resulted in a cost reduction of $3,448.96. The grand total of Change Order No. 3 was a price increase of $12,206.44.

The original contract cost for the Cascade County Small Prospect AMR Project was $148,336.46; final contract cost was $137,497.50, reduced with Change Order adjustments by $10,838.96. Total Change Order Costs were 7.31% of original construction costs.

5.2.2 Cost Per Bid Item

Item	Unit	Total Quantity	Total Cost	Cost Per Unit
1. Coversoil Remove & Replace	CY	4,830	$10,403.75	$2.15/CY
2. Probe collapsed adit	EA	4	$420.00	$105.00/EA
3. Adit closures	EA	16	$9,850.00	$615.63/EA
4. Waste pile disposal	CY	4,783	$9,199.50	$1.92/CY
5. Debris removal	CY	1,771	$7,076.25	$4.00/CY
6. Lime	TON	86.5	$5,942.50	$68.70/T
7. Fertilizer, Seed, Mulch	ACRE	8	$12,700.00	$1,587.50/AC
8. Provide water	GAL	22,700	$567.50	$.025/GAL
9. Farm fence	LF	9,869	$12,320.00	$1.25/LF
10. Adit drainage systems	EA	2	$2,100.00	$1,050.00/EA

5.2.3 Cost Per Site

The total cost for each reclamation site included on this project is listed below:

Site Name	Amount
Centerville Site	$23,797.20
Chicken Coulee Site	$13,201.30
Cottonwood Creek Site	$12,874.75
McKamey Ranch Site	$ 3,000.00
Neil Creek Site	$ 1,500.00
Number Five Coulee Site	$13,927.05
Tracy Reclamation Site	$15,909.20
Miners Centennial Well Site	$35,132.60
Johnson Field Neutralization (C.O. No. 3)	$15,155.40
Lorang Site (C.O. No. 2)	$ 2,500.00

5.2.4 Analysis of Consultant Costs Incurred vs. Actual Construction Costs

Construction time for this project was set at 96 calendar days. The contractor utilized the allotted time to complete the project. This created an increase in inspection time and expense. Refer to Attachment 8 for an analysis of costs.

5.3 Site Conditions after Completion

Immediately following the project seeding and mulching, all sites were judged to be in a satisfactory condition. During the well construction at the Miners Centennial Park gusty winds were prevalent and could have adverse effects on the mulching of the exposed sites. Due to winter conditions, the Final AMRB site inspection was not completed until February 12, 1991. Sites were in remarkably good condition, showing no signs of erosion or mulch problems.

5.4 As-Built Drawings

The As-Built drawings are included in Attachment 6.

5.5 Maintenance or Follow-up

The inspection conducted on February 12, 1991 indicated that additional work on the sites was not required. A follow-up inspection is recommended to determine seeding success and prepare a maintenance recommendation.

A weed control plan was submitted to the Cascade County Weed Control Board for approval and is included in Attachment 5.

6. COMMENTS/SUGGESTIONS

The problems encountered on the reclamation construction of the Cascade Small Prospects were related to interpretation of a set of plans and specifications prepared by one consultant and implemented by another. The reclamation requirements, design details, and construction methods specified on the plans by the design consultant were different than those commonly employed by the construction consultant. Field modifications were routinely made to adapt the actual site conditions to the presumed intent of the plans and specifications. Certain modifications included relocation of waste pile deposition areas to accommodate equipment operation; realignment of seepage collectors to improve drainage interception; lime application rate adjustments; augmenting the stock water source at the Tracy Site by installing a 1,000 gallon auxiliary

tank and enlarging the size of the proposed tank; and modification of the well specification at the Centennial Park to conform to materials that are readily available in Montana.

The problems experienced with interpreting and implementing another consultant's design during construction would be resolved with a standardization of plans and specifications on AMRB projects. Standardizing is currently being pursued by AMRB and the standard plans and specifications should be available for 1991 construction. The Cascade Small Prospects project was an example of the difficulties encountered without the continuity of established reclamation standards. The problems on the Cascade County project remained minor and were easily resolved due to the cooperative manner of the responsible parties. As a result, the project was satisfactorily completed in accordance with the standards expected by DSL-AMRB.

7. PHOTOGRAPHS

Project photographs and photo descriptions are included in Attachment 10.

ATTACHMENT 1

BID TABULATION

SECTION II

2.1 PROPOSAL

BID SHEET

ITEM NO.	ESTIMATED QUANTITY	UNIT	DESCRIPTION	UNIT PRICE	TOTAL PRICE
SCHEDULE 0 - MOBILIZATION:					
1.	1	LS	MOBILIZATION (ALL SITES EXCEPT CHICKEN COULEE) $XXXXXXXXX		$ 3,500.00
SCHEDULE I - CENTERVILLE COAL RECLAMATION SITE:					
1.	2131	CY	COVER SOIL REMOVAL & REPLACEMENT	$ 2.00	$ 4,262.00
2.	3	EACH	PROBE COLLAPSED ADIT	$ 90.00	$ 270.00
3.	5	EACH	CLOSE MINE OPENING-IF REQUIRED	$ 800.00	$ 4,000.00
4.	2890	CY	WASTE PILE DISPOSAL WITHIN 300' OF SITE	$ 2.00	$ 5,780.00
5.	350	CY	WASTE PILE DISPOSAL-MATERIAL MOVED OVER 300'	$ 3.50	$ 1,225.00
6.	16.5	TON	LIME	$ 65.00	$ 1,072.50
7.	1 3/4	ACRES	FERTILIZE, SEED & MULCH	$ 1500.00	$ 2,625.00
8.	38,862	GAL	PROVIDE WATER	$ .014	$ 544.00
9.	4990	LF	FARM FENCE	$ 1.30	$ 5,987.00

SUBTOTAL (CENTERVILLE SITE) $ 26,299.31

SUBTOTAL (CENTERVILLE SITE) Twenty-Six Thousand Two Hundred Ninety-nine and 31/100

(PRICE IN WORDS)

SECTION II

2.1 PROPOSAL (Cont.)

Schedule I subtotal from page 3-14

ITEM NO.	ESTIMATED QUANTITY	UNIT	DESCRIPTION	UNIT PRICE	TOTAL PRICE
SCHEDULE II - CHICKEN COULEE RECLAMATION SITE:					
1.	890	CY	COVER SOIL REMOVAL & REPLACEMENT	$ 2.25	$ 2,002.50
2.	1	EACH	PROBE ADIT OPENING	$ 90.00	$ 90.00
3.	1	EACH	ADIT CLOSURE IF REQUIRED	$ 1.00	$ 1.00
4.	375	CY	WASTE PILE DISPOSAL AND DIKE EMBANKMENT	$ 2.00	$ 750.00
5.	40	TONS	LIME	$ 65.00	$ 2,600.00
6.	1.0	ACRES	FERTILIZE, SEED, & MULCH	$ 2,200.00	$ 2,200.00
7.	4500	GAL	PROVIDE WATER	$ -0-	$ -0-
8.	1220	LF	FARM FENCE	$ 1.60	$ 1,952.00
9.	1	EACH	MOBILIZATION (CHICKEN COULEE SITE ONLY)	$ 4,500.00	$ 4,500.00

SUBTOTAL (CHICKEN COULEE SITE) $ 14,095.50

SUBTOTAL (CHICKEN COULEE SITE) Fourteen Thousand Ninety-Five and 50/100

(PRICE IN WORDS)

SECTION II

2.1 PROPOSAL (Cont.)

ITEM NO.	ESTIMATED QUANTITY	UNIT	DESCRIPTION	UNIT PRICE	TOTAL PRICE
SCHEDULE III - COTTONWOOD CREEK:					
1.	500	CY	COVER SOIL REMOVAL & REPLACEMENT	$ 2.25	$ 1,125.00
2.	1	ACRE	PROBE COLLAPSED ADIT	$ 150.00	$ 150.00
3.	1	EACH	ADIT CLOSURE-IF REQUIRED	$ 300.00	$ 300.00
4.	650	CY	WASTE PILE DISPOSAL	$ 1.25	$ 812.50
5.	350	CY	HAUL	$ 3.00	$ 1,050.00
6.	830	SY	DEBRIS & STRUCTURE	$ 1.25	$ 1,037.50
6a.	140	CY	ROCK WALL REMOVAL AND DISPOSAL	$ 17.00	$ 2,380.00
7.	4.5	TONS	LIME	$ 97.00	$ 436.50
8.	1.0	ACRE	FERTILIZE, SEED, & MULCH	$ 1,500.00	$ 1,500.00
9.	7800	GAL	PROVIDE WATER	$ .025	$ 195.00
10.	650	LF	FARM FENCE	$ 1.20	$ 780.00
11.	1	LS	ADIT DRAINAGE SYSTEM	$ 850.00	$ 850.00

SUBTOTAL (COTTONWOOD CREEK SITE) $ 10,616.50

SUBTOTAL (COTTONWOOD CREEK SITE) Ten Thousand Six Hundred Sixteen and 50/100

(PRICE IN WORDS)

SECTION II

2.1 PROPOSAL (Cont.)

ITEM NO.	ESTIMATED QUANTITY	UNIT	DESCRIPTION	UNIT PRICE	TOTAL PRICE
SCHEDULE IV - MCKAMEY RANCH:					
1.	1	EACH	ADIT CLOSURE ___BLAST OR ___ADIT SEAL	$ 750.00	$ 750.00
	1	EACH	___BLAST OR ___ADIT SEAL	$ 750.00	$ 750.00
	1	EACH	___BLAST OR ___ADIT SEAL	$ 750.00	$ 750.00
	1	EACH	___BLAST OR ___ADIT SEAL	$ 750.00	$ 750.00

SUBTOTAL (MCKAMEY RANCH SITE) $ 3000.00

SUBTOTAL (MCKAMEY RANCH SITE) Three Thousand and no-/00 ths

(PRICE IN WORDS)

SECTION II

2.1 PROPOSAL (Cont.)

ITEM NO.	ESTIMATED QUANTITY	UNIT	DESCRIPTION	UNIT PRICE	TOTAL PRICE
SCHEDULE V - NEIL CREEK:					
1.	1	EACH	ADIT CLOSE BY ___BLAST OR ___ADIT SEAL	$ 250.00	$ 250.00
2.	1	EACH	___BLAST OR ___ADIT SEAL	$ 250.00	$ 250.00

SUBTOTAL (NEIL CREEK SITE) $ 1,500.00

SUBTOTAL (NEIL CREEK SITE) One Thousand Five Hundred and no/100ths

(PRICE IN WORDS)

ITEM NO.	ESTIMATED QUANTITY	UNIT	DESCRIPTION	UNIT PRICE	TOTAL PRICE
SCHEDULE VI - NUMBER FIVE COULEE:					
1.	1200	CY	COVER SOIL REMOVAL & REPLACEMENT	$ 2.00	$ 2,400.00
2.	2	EACH	PROBE COLLAPSED ADIT	$ 90.00	$ 180.00
3.	5	EACH	ADIT SEAL OR BLAST	$ 500.00	$ 2,500.00
4.	4	EACH	ADIT CLOSURE-IF REQUIRED	$ 300.00	$ 1,200.00
5.	955	CY	WASTE PILE DISPOSAL	$ 1.75	$ 1,671.25
6.	19	TON	LIME	$ 65.00	$ 1,235.00
7.	1.5	ACRE	FERTILIZE, SEED, AND MULCH	$ 1,500.00	$ 2,250.00
8.	11460	GAL	PROVIDE WATER	$ .025	$ 286.50
9.	2310	LF	FARM FENCE	$ 1.20	$ 2,772.00

SUBTOTAL (NUMBER FIVE COULEE SITE) $ 14,494.75/100

SUBTOTAL (NUMBER FIVE COULEE SITE) Fourteen Thousand Four Hundred Ninety-four and 75/100
(PRICE IN WORDS)

SECTION II

2.1 PROPOSAL (Cont.)

ITEM NO.	ESTIMATED QUANTITY	UNIT	DESCRIPTION	UNIT PRICE	TOTAL PRICE
SCHEDULE VII - TRACY RECLAMATION SITE:					
1.	655	CY	COVER SOIL REMOVAL & REPLACEMENT	$ 2.00	$ 1,310.00
2.	1	EACH	ADIT SEAL	$ 250.00	$ 250.00
3.	585	CY	WASTE PILE DISPOSAL	$ 1.75	$ 1,023.75
4.	653	CY	DEBRIS & STRUCTURAL DISPOSAL	$ 1.75	$ 1,142.75
5.	410	CY	DIKE EMBANKMENT	$ 6.00	$ 2460.00
6.	~~5~~ 5	TONS	LIME	$ 65.00	$ 325.00
7.	1	ACRES	FERTILIZE, SEED, & MULCH	$ 1,500.00	$ 1,500.00
8.	1900	LF	FARM FENCE	$ 1.20	$ 2,280.00
9.	14,900	GAL	PROVIDE WATER	$ .025	$ 372.50
10.	1	EACH	ADIT DRAINAGE SYSTEM	$ 1,250.00	$ 1,250.00

SUBTOTAL (TRACY RECLAMATION SITE) $ 12,414.00

SUBTOTAL (TRACY RECLAMATION SITE) Twelve Thousand Four Hundred Fourteen and NO/100.
(PRICE IN WORDS)

SECTION II

2.I PROPOSAL (Cont.)

ITEM NO.	ESTIMATED QUANTITY	UNIT	DESCRIPTION	UNIT PRICE	TOTAL PRICE
SCHEDULE VIII - CENTERVILLE "C" RECLAMATION SITE:					
1.	1	EACH	ADIT SEAL	$ 250.00	$ 250.00
2.	95	CY	COVER SOIL REMOVAL & REPLACEMENT	$ 4.00	$ 380.00
3.	765	CY	IMPORT COVER SOIL	$ 6.00	$ 4590.00
4.	1,111	SY	EROSION CONTROL BLANKET	$ 1.40	$ 1555.40
5.	57	TONS	CRUSHED LIME-STONE VENEER	$ 65.00	$ 3705.00
6.	510	CY	TRENCH EXCAVATION	$ 14.00	$ 7140.00
7.	820	LF	SEEPAGE INTER-CEPTOR & PIPING	$ 5.25	$ 2173.00
8.	3/4	AC	FERTILIZE, SEED, AND MULCH	$ 2000.00	$ 1500.00
9.	1600	LF	FARM FENCE	$ 1.20	$ 1920.00

SUBTOTAL (CENTERVILLE "C" RECLAMATION SITE) $ 25,713.40

SUBTOTAL (CENTERVILLE "C" RECLAMATION SITE) Twenty-eight Thousand Seven Hundred Fifteen and 40/100
(PRICE IN WORDS)

SECTION II

2.1 PROPOSAL (Cont.)

ITEM NO.	ESTIMATED QUANTITY	UNIT	DESCRIPTION	UNIT PRICE	TOTAL PRICE
SCHEDULE IX - MINER'S CENTENNIAL PARK WELL:					
1.	1	LS	SET-UP & REMOVAL DRILLING EQUIPMENT	$ 2,500.00	$ 2,500.00
2.	300	LF	DRILLING HOLE TO ACCOMMODATE 8" I.D. CASING	$ 48.00	$ 14,400.00
3.	300	LF	FURNISH & INSTALL 8" I.D. CASING (0.250 WALL)	$ 14.50	$ 4,350.00
4.	50	LF	PERFORATION OF WELL CASING WITH PERFORATOR OR WITH TORCH CUT SLOTS	$ 23.00	$ 1,150.00
4a.	20	LF	(ALTERNATE) FURNISH AND INSTALL A STAIN-LESS STEEL WELL SCREEN	$ 85.00	$ 1,700.00
5.	1	LS	SURGING & DEVELOPING WELL FOR 6 HOURS	$ 780.00	$ 780.00
6.	EACH	PER HOUR	SURGING & DEVELOPING WELL FOR ADDITIONAL TIME OF DEVELOPMENT	$ 130.00	$ 130.00

SECTION II

2.1 PROPOSAL (Cont.)

ITEM NO.	ESTIMATED QUANTITY	UNIT	DESCRIPTION	UNIT PRICE	TOTAL PRICE
7.	1	LS	TEST PUMP FOR SIX (6) HOURS & RECORD WATER LEVELS & TIME OF PUMPING (APPROX-IMATE RATE OF 1.5 TIMES DESIGN (GPM)	$XXXXXXXXXX	$ 5[illegible].00
8.	EACH	PER HOUR	TEST PUMP MORE THAN SIX (6) HOURS & RECORD WATER LEVELS & TIME OF PUMPING	$ [illegible]	$ [illegible]
9.	1	EACH	FURNISH & ATTACH A STEEL WELL CAP	$ [illegible]	$ [illegible]
10.	1	LS	SEAL & GROUT WELL TO 20 FOOT DEPTH	$XXXXXXXXXX	$ 3[illegible].00
11.	150	LF	UNDERGROUND POWER SERVICE	$ 3.00	$ 4[illegible].00
12a.	300	LF	DROP PIPE, WATER LEVEL ACCESS TUBE, ELECTRICAL CABLE	$ 4.[illegible]	$ 1,4[illegible].00
12b.	1	LS	PITLESS ADAPTOR TORQUE STOP CHECK VALVE	$XXXXXXXXXX	$ [illegible].00
13.	1	LS	EXTERIOR PIPING AND VALVES AND EMBANKMENT	$XXXXXXXXXX	$ [illegible],5[illegible].00
14.	1	LS	SUBMERSIBLE PUMP GOULD 70J15634 15 HP PUMP	$XXXXXXXXXX	$ 3,1[illegible].00

SECTION II

SUBTOTAL (MINER'S CENTENNIAL PARK WELL) $ 33,701.00

SUBTOTAL (MINER'S CENTENNIAL PARK WELL) Thirty-three Thousand Seven Hundred One and no/100

(PRICE IN WORDS)

ADDITIONAL ITEMS IF REQUIRED

A)	LF	BACKFILLING OF ABANDONED WELL	$ 1.25	$ 1.25

SECTION II

2.1 PROPOSAL (Cont.)

BID SUMMARY

SCHEDULE NO.	LOCATION	TOTAL COST OF EACH SITE
SCHEDULE 0.	MOBILIZATION	$ ~~60,000.00~~ 5,500.00
SCHEDULE I.	CENTERVILLE	$ 5,809.31
SCHEDULE II.	CHICKEN COULEE	$ 14,095.50
SCHEDULE III.	COTTONWOOD CREEK	$ 10,616.50
SCHEDULE IV.	MCKAMEY RANCH	$ 3,000.00
SCHEDULE V.	NEIL CREEK	$ 1,500.00
SCHEDULE VI.	NUMBER FIVE COULEE	$ 14,494.25
SCHEDULE VII.	TRACY	$ 13,414.00
SCHEDULE VIII.	CENTERVILLE "C"	$ 25,715.40
SCHEDULE IX.	MINER'S CENTENNIAL PARK WELL	$ 33,201.00

TOTAL BASE BID:

One Hundred Forty-Eight Thousand, Three Hundred Thirty-Six And 46/100
Four Hundred Four Thousand Eight Hundred Thirty-Six and 50/100
(PRICE IN WORDS)

DOLLARS $ ~~404,836.50~~ 148,336.46
(PRICE IN NUMBERS)

$\frac{28\,715.40}{148\,336.46} = 19.3\% \times 120 \text{ days} = 23.3 \text{ days}$

$= 96.7 \text{ days}$

2.1 PROPOSAL (Cont.)

The foregoing unit bid prices shall include all labor, materials, equipment, overhead, profit, insurance, and all incidentals required to cover the finished work of the several kinds called for.

Bidder understands that the Owner reserves the right to reject any or all bids and to waive any informalities in the bidding.

The Bidder agrees that this Bid shall be good and may not be withdrawn for a period of thirty (30) calendar days after the scheduled opening time.

Bidder hereby acknowledges receipt of the following Addenda:

Addendum No. ONE Dated 6/21/90
Addendum No. _____ Dated _____
Addendum No. _____ Dated _____

Firm Name: Schumaker Trucking And Excavating Contractors, Inc.

By: _____
Signature

Title: Joseph G Aline, Secretary-Treasurer

Business Address: P.O. Box 1442

Great Falls, MT 59403

Mont. Contractor's License #: 5177 A

Telephone Number: (406) 727-3537

ATTACHMENT 2

CHANGE ORDERS

CHANGE ORDER

ORDER NO: 1

PROJECT TITLE: Cascade County Small Prospects

MONT A/E or DSL-AMRB: 90-012

CONTRACT DATE: 7/27/90 (AOM 8/6/90)

OWNER: Abandoned Mine Reclamation Bureau, Montana Dept. of State Lands

CONTRACTOR: Shumaker Trucking and Excavating Contractors, Inc.

Change Orders must be accompanied by an itemized cost breakdown. You are hereby requested to comply with the following changes from the Contract Documents. (Show separate costs for materials, labor, equipment, and miscellaneous. Show percent where applicable.)

ITEM NO.	DESCRIPTION OF CHANGES - ESTIMATED QUANTITIES & UNITS	COST OF CHANGES					TOTAL COST
		MAT'LS.	LABOR	EQUIP.	MISC.	TOTAL UNIT COST	
1.	Delete - Schedule VIII - Centerville "C" Site					$28,715.40	$28,715.40
	TOTAL COST - MATERIALS, LABOR, EQUIPMENT & MISC.						$ 28,715.40
	OVERHEAD & PROFIT @ 0 %						--
	GRAND TOTAL - THIS CHANGE ORDER						$ 28,715.40

Original Contract Price	$148,336.46
Current Contract Price Adjusted by Previous Change Order	148,336.46
Cost this Change Order (+ or (-))	28,715.40
New Contract Price including this Change Order	$119,621.06

The completion date as set forth in the Contract Documents shall be (~~unchanged, increased~~, decreased) by 24 calendar days.

The date for completion of all work will be 11/10/90.

Description and Justification for Change:

1. Delete Centerville "C" Reclamation Site - Schedule VIII.

   $28,715.40 (VIII)/$148,336.46 (Total Base Bid) equals approx. 20%.
   120 days - 20% = 96 days remaining.

SURETY CONSENT

The Surety hereby consents to the aforementioned Contract Change Order and agrees that its bond or bonds shall apply and extend to the Contract as thereby modified or amended per this Change Order. The Principal and the Surety further agree that on or after execution of this consent, the penalty of the applicable Performance Bonds or Bonds is hereby decreased by $ 28,715.40 (100% of the Change Order amount) and the penalty of the applicable Labor and Material Bond or Bonds is hereby decreased $ 28,715.40 (100% of the Change Order amount).

COUNTERSIGNED BY MONTANA RESIDENT AGENT COGSWELL AGENCY

E B Cogswell Jr

SURETY

MCA INSURANCE COMPANY

By E B Cogswell Jr

Seal

Recommended by: Robert B Morton — Engineer — 7/30/90 — Date

Accepted by: [signature] — Contractor — 8/3/90 — Date

Approved by: [signature] — Owner — 8/6/90 — Date

CHANGE ORDER

ORDER NO: 2

PROJECT TITLE: Cascade County Small Prospects

MONT A/E or DSL-AMRB: 90-012

CONTRACT DATE: 7/27/90

OWNER: Abandoned Mine Reclamation Bureau, Montana Dept. of State Lands

CONTRACTOR: Shumaker Trucking and Excavating Contractors, Inc.

Change Orders must be accompanied by an itemized cost breakdown. You are hereby requested to comply with the following changes from the Contract Documents. (Show separate costs for materials, labor, equipment, and miscellaneous. Show percent where applicable.)

ITEM NO.	DESCRIPTION OF CHANGES - ESTIMATED QUANTITIES & UNITS	COST OF CHANGES					TOTAL COST
		MAT'LS.	LABOR	EQUIP.	MISC.	TOTAL UNIT COST	
1.	Install a 1,000 gallon stock tank, provide pipe, gate valves, and necessary appurtenances.					$3,170.00	$3,170.00
2.	Close and seal open adit with riprap.					2,500.00	2,500.00
	TOTAL COST - MATERIALS, LABOR, EQUIPMENT & MISC.						$ 5,670.00
	OVERHEAD & PROFIT @ 0 %						--
	GRAND TOTAL - THIS CHANGE ORDER						$ 5,670.00

Original Contract Price	$148,336.46
Current Contract Price Adjusted by Previous Change Order	119,621.06
Cost this Change Order (+ or -)	5,670.00
New Contract Price including this Change Order	$125,291.06

The completion date as set forth in the Contract Documents shall be (unchanged, ~~increased, decreased~~) by 24 calendar days.

The date for completion of all work will be 11/10/90.

Description and Justification for Change:

1. Install 1,000 gallon stock tank, including pipe, pipe trenching, gate valves, and necessary appurtenances. This is a field design revision conducted at the Tracy site.

2. Close and seal open adit with riprap. This is an additional site found on the Lorange property.

SURETY CONSENT

The Surety hereby consents to the aforementioned Contract Change Order and agrees that its bond or bonds shall apply and extend to the Contract as thereby modified or amended per this Change Order. The Principal and the Surety further agree that on or after execution of this consent, the penalty of the applicable Performance Bonds or Bonds is hereby increased by $ 5,670 (100% of the Change Order amount) and the penalty of the applicable Labor and Material Bond or Bonds is hereby increased by $ 5,670 (100% of the Change Order amount).

COUNTERSIGNED BY MONTANA RESIDENT AGENT

SURETY

MCA Insurance Co.

By: Lorna A Lorange attorney in fact.

Seal

Recommended by: Robert B Mortan — Engineer — 9/13/90 — Date

Accepted by: [signature] — Contractor — 9/14/90 — Date

Approved by: Jerry Marshall — Owner — 9/28/90 — Date

BOND NO: 400JC8461

CHANGE ORDER

ORDER NO: 3

PROJECT TITLE: Cascade County Small Prospects

MCNT A/E or DSL-AMRB: 90-012

CONTRACT DATE: 7/27/90

OWNER: Abandoned Mine Reclamation Bureau, Montana Department of State Lands

CONTRACTOR: Shumaker Trucking and Excavating, Great Falls, MT

Change Orders must be accompanied by an itemized cost breakdown. You are hereby requested to comply with the following changes from the Contract Documents. (Show separate costs for materials, labor, equipment, and miscellaneous. Show percent where applicable.)

ITEM NO.	DESCRIPTION OF CHANGES - ESTIMATED QUANTITIES & UNITS	COST OF CHANGES					TOTAL COST
		MAT'LS.	LABOR	EQUIP.	MISC.	TOTAL UNIT COST	
1.	Quantity Adjustments (See Attached)						($3,448.56)
2.	Ackins residential water supply problem					$500.00	$500.00
3.	Additional work to neutralize low pH soils per Work Directive #1					$16,300.00	$16,300.00
4.	Quantity Adjustment to Change Order #3, Item #3						($1,644.30)
	TOTAL COST - MATERIALS, LABOR, EQUIPMENT & MISC.						$12,206.44
	OVERHEAD & PROFIT @ _____%						
	GRAND TOTAL - THIS CHANGE ORDER						$12,206.44

Original Contract Price	$148,336.46
Current Contract Price Adjusted by Previous Change Order	$125,291.00
Cost this Change Order (+ or -)	$12,206.44
New Contract Price including this Change Order	$137,497.50

The completion date as set forth in the Contract Documents shall be (unchanged, increased, decreased) by _____ calendar days.

The date for completion of all work will be 12/15/90.

Description and Justification for Change:

1. Bid quantity adjustments for Schedules I, II, III, VI, VII, and IX to reflect actual quantities at contract prices.
2. Correction of obstructed water lines @ Adkins residence, Tracy, Montana.
3. Additional work to neutralize low pH soils on Johnson Field, Tracy, Montana @ 35 T/A.
4. Adjustment of lime quantity to reflect out of specification liming material.

SURETY CONSENT

The Surety hereby consents to the aforementioned Contract Change Order and agrees that its bond or bonds shall apply and extend to the Contract as thereby modified or amended per this Change Order. The Principal and the Surety further agree that on or after execution of this consent, the penalty of the applicable Performance Bonds or Bonds is hereby increased by $12,206.44 (100% of the Change Order amount) and the penalty of the applicable Labor and Material Bond or Bonds is hereby increased by $12,206.44 (100% of the Change Order amount).

COUNTERSIGNED BY MONTANA RESIDENT AGENT

COGSWELL AGENCY

SURETY

ST. PAUL FIRE & MARINE INSURANCE COMPANY

By: _____ Seal

Recommended by: Robert B Morton ROBERT PELLIN - ASSOC. 1/18/91
Engineer Date

Accepted by: _____ 1/22/91
Contractor Date

DH 2/4/91

Approved by: Larry Marshall 2/4/91
Owner Date

ATTACHMENT 3

PAYMENT REQUESTS

PAYMENT REQUEST NO. One

FROM Aug. 6 TO Sept. 14, 1990

PROJECT TITLE: Cascade County Small Prospects Project

LOCATION: Cascade County DSL-AMRB: 90-012

NAME OF CONTRACTOR: Shumaker Trucking and Excavating Contractors, Inc.

ADDRESS: P. O. Box 1442, Great Falls, MT 59403-1442

CHANGE ORDERS

No.	Description	Amount
2		5,670.00
Total Change Orders		5,670.00

CONTRACT TO DATE INCLUDING CHANGE ORDERS $ 125,291.06

* For use only when securities are on deposit in lieu of retainage.

TOTAL RETAINAGE $ _____

SECURITIES ON DEPOSIT $ _____

ADJUSTED RETAINAGE $ _____

CONTRACT STATUS

Total Amount	Completed Amount	Uncompleted Amount	Percent Complete
~~19621.06~~ 125,291.06	~~59,525.30~~ 64,932.50	~~60,095.76~~ 60,358.56	~~50%~~ 51.8 %

COMPLETED TO DATE	$ ~~65,195.30~~ 64,932.50	
PLUS MATERIALS ON SITE	$ 804.70	
TOTAL COMPLETED TO DATE	$ ~~66,000.00~~ 65,737.20	
LESS RETAINAGE 5%	$ ~~-0-~~ 3,286.86	
TOTAL AMOUNT EARNED TO DATE	$ ~~66,000.00~~ 62,450.34	
LESS PREVIOUS PAYMENTS	$ -0-	
AMOUNT DUE THIS PAYMENT	$ ~~66,000.00~~ 62,450.34	
LESS 1% TAX	$ ~~660.00~~ 624.50	
TOTAL DUE CONTRACT	$ ~~65,340.00~~ 61,825.83	

RBM 9/26/90

I certify that this claim is correct and just in all respects and that payment or credit has not been received.

Shumaker Trucking and Excavating Contractors, Inc.

Contractor

By Joseph Aline

Date September 14, 1990

APPROVED BY:

Owner

By Larry Marshall

Date 10/1/90

RECOMMENDED BY:

ROBERT PECCIA + ASSOC.

Engineer

By Robert B Morton

Date 9/26/90

DH 9/28/90

ITEMIZATION OF QUANTITIES AND COSTS						
Item	Description	Estimated Plan Quanity	Unit Price Bid	Units of Work Completed To Date	Total Cost of Complete Work	Percent Complete
O-1.	Mobilization	L.S.	3,500.00	3,500.00	3,500.00	100
I-1.	Cover Soil	2,131	2.25	1648 cy	3,708.00	100
I-2.	Probe Collapsed Adit	3	90.00	-0-	-0-	-0-
I-3.	Close Mine Opening	5	800.00	1	800.00	100
I-4.	Waste Pile Disposal > 300'	2,890	2.00	1792 cy	3,584.00	100
I-5.	Waste Pile Disposal < 300'	350	3.50	350 cy	1,225.00	100
I-6.	Lime	16.5	65.00	16 tons	1,040.00	100
I-7.	Fertilize, Seed & Mulch	1.75	1,500.00	-0-	-0-	-0-
I-8.	Provide Water	38,862	0.014	-0-	-0-	-0-
I-9.	Farm Fence	4,990	1.20	-0-	-0-	-0-
II-1.	Cover Soil	890	2.25	700 cy	1,575.00	100
II-2.	Probe Adit Opening	1	90.00	1	90.00	100
II-3.	Adit Closure	1	1.00	-0-	-0-	-0-
II-4.	Waste Pile Dispoal & Dike	375	2.00	375 cy	750.00	100
II-5.	Lime	40	65.00	33.5 tons	2,177.50	100
II-6.	Fertilize, Seed & Mulch	1.0	2,200.00	-0-	-0-	-0-
II-7.	Provide Water	4,500	-0-	-0-	-0-	-0-
II-8.	Farm Fence	1,220	1.60	-0-	-0-	-0-
II-9.	Mobilization Chicken	L.S.	4,500.00	4,500.00	4,500.00	100
III-1.	Cover Soil	500	2.25	583 cy	1,311.75	100
III-2.	Probe Collasped Adit	1	150.00	1	150.00	100
III-3.	Adit Closure	1	300.00	1	300.00	100
III-4.	Waste Pile Disposal	650	1.25	650 cy	812.50	100
III-5.	Haul	350	3.00	-0-	-0-	-0-
III-6.	Debris & Structure	830	1.25	830 cy	1,037.50	100
III-6a.	Rock Wall Removal	140	17.00	288 cy	4,896.00	100
III-7.	Lime	4.5	97.00	10 tons	970.00	100
III-8.	Fertilize, Seed & Mulch	1.0	1,500.00	-0-	-0-	-0-
III-9.	Provide Water	7,800	0.025	7,800 Gals	195.00	100
III-10.	Farm Fence	650	1.20	~~550~~ 710	~~792.00~~ 852.00	100
III-11.	Adit Drainage System	1	850.00	1	850.00	100
TOTAL						

ITEMIZATION OF QUANTITIES AND COSTS

Item	Description	Estimated Plan Quantity	Unit Price Bid	Units of Work Completed To Date	Total Cost of Complete Work	Percent Complete
IV-1.	Adit Closure	4	750.00	4	3,000.00	100
V-1.	Adit Closure	1	750.00	1	750.00	100
V-2.	Adit Closure	1	750.00	1	750.00	100
VI-1.	Cover Soil	1,200	2.00	1,200 cy	2,400.00	100
VI-2.	Probe Collapsed Adit	2	90.00	2	180.00	100
VI-3.	Adit Closure	5	500.00	7	3,500.00	100
VI-4.	Adit Closure	4	300.00	-0-	-0-	-0-
VI-5.	Waste Pile Disposal	955	1.75	1,031 cy	1,804.25	100
VI-6.	Lime	19	65.00	16 tons	1,040.00	100
VI-7.	Fertilize, Seed & Mulch	1.5	1,500.00	-0-	-0-	-0-
VI-8.	Provide Water	11,460	0.025	-0-	-0-	-0-
VI-9.	Farm Fence	2,310	1.20	2125 ~~2,294~~ ft	2550.00 ~~2,752.80~~	100
VII-1.	Cover Soil	655	2.00	655 cy	1,310.00	100
VII-2.	Adit Seal	1	750.00	1	750.00	100
VII-3.	Waste Pile Disposal	585	1.75	585 cy	1,023.75	100
VII-4.	Debris & Struc. Disp.	653	1.75	653 cy	1,142.75	100
VII-5.	Dike Embankment	410	6.00	410	2,460.00	100
VII-6.	Lime	5	65.00	11	715.00	100
VII-7.	Fertilize, Seed & Mulch	1	1,500.00	-0-	-0-	-0-
VII-8.	Farm Fence	1,900	1.20	-0-	-0-	-0-
VII-9.	Provide Water	14,900	0.025	14,900 Gals	372.50	100
VII-10.	Adit Drain System	1	1,250.00	1	1,250.00	100
IX-1.	Set up & Removal	L.S.	2,500.00	-0-	-0-	-0-
IX-2.	Drill for 8" I.D. Casing	300	48.00	-0-	-0-	-0-
IX-3.	Furn. & Install 8" Casing	300	14.50	-0-	-0-	-0-
IX-4.	Perforation of Casing	50	23.00	-0-	-0-	-0-
IX-4a.	Furn. & Install Well Screen	20	85.00	-0-	-0-	-0-
IX-5.	Surge & Develope Well	L.S.	780.00	-0-	-0-	-0-
IX-6.	Surge & Develope Well	Per Hour	130.00	-0-	-0-	-0-
IX-7.	Test Pump 6 hrs	L.S.	510.00	-0-	-0-	-0-
IX-8.	Test Pump < 6 hrs	Per Hour	85.00	-0-	-0-	-0-
TOTAL						

ITEMIZATION OF QUANTITIES AND COSTS

Item	Description	Estimated Plan Quantity	Unit Price Bid	Units of Work Completed To Date	Total Cost of Complete Work	Percent Complete
IX-9.	Furnish & Install Steel Cap	1	85.00	-0-	-0-	-0-
IX-10.	Seal & Grout to 20 ft.	1	350.00	-0-	-0-	-0-
IX-11.	Underground Power Service	150	3.00	-0-	-0-	-0-
IX-12a.	Drop pipe, Level Tube, Cable	300	4.92	-0-	-0-	-0-
IX-12b.	Pitless Torque Check Valve	1	235.00	-0-	-0-	-0-
IX-13.	Exterior Pipe, valves & Emb.	1	2,400.00	-0-	-0-	-0-
IX-14.	Submersible Pump	1	3,100.00	-0-	-0-	-0-
A.	Backfilling of Abandoned Well	1	1.25	-0-	-0-	-0-
					$0 262.50	
TOTAL					~~$9,525.30~~	

SCHEDULE OF MATERIAL ON SITE

PROJECT TITLE: Cascade County Small Prospects Project

DSL-AMRB: 90-012

CONTRACTOR: Shumaker Trucking and Excavating Contractors, Inc.

Item _____	Material Delivered	$1,083.25
	Material In Place	278.55
	Material on Site	$804.70
Item _____	Material Delivered	
	Material In Place	
	Material on Site	
Item _____	Material Delivered	
	Material In Place	
	Material on Site	
Item _____	Material Delivered	
	Material In Place	
	Material on Site	
Item _____	Material Delivered	
	Material In Place	
	Material on Site	
Item _____	Material Delivered	
	Material In Place	
	Material on Site	
	TOTAL MATERIAL ON SITE	
	(Attach applicable invoices or bills of lading.)	

Requested by: Shumaker Trucking and Excavating Contractors, Inc.
(Contractor)

To be included in Payment Request No. One .

PAYMENT REQUEST NO. Two

FROM 9-15-90 TO 11-14-90

PROJECT TITLE: Cascade County Small Prospects Project

LOCATION: Cascade County DSL-AMRB: 90-012

NAME OF CONTRACTOR: Shumaker Trucking and Excavating Contractors, Inc.

ADDRESS: P. O. Box 1442, Great Falls, MT 59403

CHANGE ORDERS

No.	Description	Amount
2		5,670.00
Total Change Orders		5,670.00

CONTRACT TO DATE INCLUDING CHANGE ORDERS $ 125,291.06

* For use only when securities are on deposit in lieu of retainage.

TOTAL RETAINAGE $ _____

SECURITIES ON DEPOSIT $ _____

ADJUSTED RETAINAGE $ _____

CONTRACT STATUS

Total Amount	Completed Amount	Uncompleted Amount	Percent Complete
125291.06	98309.50	26981.56	78.5%

COMPLETED TO DATE	$ 98,309.50
PLUS MATERIALS ON SITE	$ -0-
TOTAL COMPLETED TO DATE	$ 98,309.50
LESS RETAINAGE	$ 4,915.48
TOTAL AMOUNT EARNED TO DATE	$ 93,394.02
LESS PREVIOUS PAYMENTS	$ 62,450.34
AMOUNT DUE THIS PAYMENT	$ 30,943.68
LESS 1% TAX	$ 309.44
TOTAL DUE CONTRACT	$ 30,634.24

I certify that this claim is correct and just in all respects and that payment or credit has not been received.

Shumaker Trucking and Excavating Contractors, Inc.
Contractor

By [signature] Pres. President

Date November 15, 1990

APPROVED BY:

Owner

By [signature]

Date 11/30/90

RECOMMENDED BY:

ROBERT PECCIA & ASSOC.
Engineer

By Robert B Morton

Date 11/20/90

DRI 11/30/90

ITEMIZATION OF QUANTITIES AND COSTS

Item	Description	Estimated Plan Quantity	Unit Price Bid	Units of Work Completed To Date	Total Cost of Complete Work	Percent Complete
0-1.	Mobilization	L.S.	3,500.00	3,500.00	3,500.00	100
I-1.	Cover Soil	2,131	2.25	1,692 c.y.	3,807.00	~~100~~ 80
I-2.	Probe Collapsed Adit	3	00.00	-0-	-0-	-0-
I-3.	Close Mine Opening	5	800.00	1	800.00	~~100~~ 20
I-4.	Waste Pile Disposal > 300'	2,890	2.00	1,792 c.y.	3,584.00	~~100~~ 62
I-5.	Waste Pile Disposal < 300'	350	3.50	350 c.y.	1,225.00	100
I-6.	Lime	16.5	65.00	16 tons	1,040.00	~~100~~ 97
I-7.	Fertilize, Seed & Mulch	1.75	1,300.00	3 acres	4,500.00	~~100~~ 171
I-8.	Provide Water	38,862	0.014	-0-	-0-	-0-
I-9.	Farm Fence	4,990	1.20	4,451 L.F.	5,341.20	~~100~~ 89
II-1.	Cover Soil	890	2.25	700 c.y.	1,575.00	~~100~~ 77
II-2.	Probe Adit Opening	1	90.00	1	90.00	100
II-3.	Adit Closure	1	1	-0-	-0-	-0-
II-4.	Waste Pile Dispcal & Dike	375	2.00	375 c.y.	750.00	100
II-5.	Lime	40	65.00	33.5 ton	2,177.50	~~100~~ 34
II-6.	Fertilize, Seed & Mulch	1.0	2,200.00	1 acre	2,200.00	100
II-7.	Provide Water	4,300	-0-	-0-	-0-	-0-
II-8.	Farm Fence	1,220	1.60	1,193 L.F.	1,908.80	~~100~~ 98
II-9.	Mobilization Chicken	L.S.	4,300.00	4,500.00	4,500.00	100
III-1.	Cover Soil	500	2.25	583 c.y.	1,311.75	~~100~~ 117
III-2.	Probe Collasped Adit	1	150.00	1	150.00	100
III-3.	Adit Closure	1	300.00	1	300.00	100
III-4.	Waste Pile Disposal	650	1.25	650 c.y.	812.50	100
III-5.	Haul	350	3.00	-0-	-0-	-0-
III-6.	Debris & Structure	830	1.25	830 c.y.	1,037.50	100
III-6a.	Rock Wall Removal	140	17.00	288 c.y.	4,896.00	~~100~~ 206
III-7.	Lime	4.5	97.00	10 tons	970.00	~~100~~ 222
III-8.	Fertilize, Seed & Mulch	1.0	1,500.00	1 acre	1,500.00	100
III-9.	Provide Water	7,800	0.025	7,800 gals	195.00	100
III-10.	Farm Fence	650	1.20	710 L.F.	852.00	~~100~~ 87
III-11.	Adit Drainage System	1	850.00	1	850.00	100
TOTAL					49,873.25	

REM 11/27/95

ITEMIZATION OF QUANTITIES AND COSTS

Item	Description	Estimated Plan Quantity	Unit Price Bid	Units of Work Completed To Date	Total Cost of Complete Work	Percent Complete
IV-1.	Adit Closure	4	750.00	4	3,000.00	100
V-1.	Adit Closure	1	750.00	1	750.00	100
V-2.	Adit Closure	1	750.00	1	750.00	100
VI-1.	Cover Soil	1,200	2.00	1,200 c.y.	2,400.00	100
VI-2.	Probe Collapsed Adit	2	90.00	2	180.00	100
VI-3.	Adit Closure	5	500.00	7	3,500.00	~~100~~ 140
VI-4.	Adit Closure	4	300.00	-0-	-0-	-0-
VI-5.	Waste Pile Disposal	955	1.75	1,031 c.y.	1,804.25	~~100~~ 108
VI-6.	Lime	19	65.00	16 tons	1,040.00	~~100~~ 84
VI-7.	Fertilize, Seed & Mulch	1.5	1,500.00	1.5 acres	2,250.00	100
VI-8.	Provide Water	11,460	0.025	-0-	-0-	-0-
VI-9.	Farm Fence	2,310	1.20	2,294 L.F.	2,752.80	~~100~~ 99
VII-1.	Cover Soil	655	2.00	655 c.y.	1,310.00	100
VII-2.	Adit Seal	1	750.00	1	750.00	100
VII-3.	Waste Pile Disposal	585	1.75	585 c.y.	1,023.75	100
VII-4.	Debris & Struc. Disp.	653	1.75	653 c.y.	1,142.75	100
VII-5.	Dike Embankment	410	6.00	410 c.y.	2,460.00	100
VII-6.	Lime	5	65.00	11 tons	715.00	~~100~~ 220
VII-7.	Fertilize, Seed & Mulch	1	1,500.00	1.5 acres	2,250.00	~~100~~ 150
VII-8.	Farm Fence	1,900	1.20	1,221 L.F.	1,465.20	~~100~~ 64
VII-9.	Provide Water	14,900	0.025	14,900 gal.	372.50	100
VII-10.	Adit Drain System	1	1,250.00	1	1,250.00	100
IX-1.	Set up & Removal	L.S.	2,500.00	2,500.00	2,500.00	100
IX-2.	Drill for 8" I.D. Casing	300	48.00	140 L.F.	6,720.00	47
IX-3.	Furn. & Install 8" Casing	300	14.50	140 L.F.	2,030.00	47
IX-4.	Perforation of Casing	50	23.00	-0-	-0-	-0-
IX-4a	Furn. & Install Well Screen	20	85.00	-0-	-0-	-0-
IX-5.	Surge & Develope Well	L.S.	780.00	-0-	-0-	-0-
IX-6.	Surge & Develope Well	Per Hour	130.00	-0-	-0-	-0-
IX-7.	Test Pump 6 hrs	L.S.	510.00	-0-	-0-	-0-
IX-8.	Test Pump < 6 hrs	Per Hour	85.00	-0-	-0-	-0-
TOTAL					42,416.25	

AB/VI 11/27

ITEMIZATION OF QUANTITIES AND COSTS						
Item	Description	Estimated Plan Quantity	Unit Price Bid	Units of Work Completed To Date	Total Cost of Complete Work	Percent Complete
IX-9.	Furnish & Install Steel Cap	1	85.00	-0-	-0-	-0-
IX-10.	Seal & Grout to 20 ft.	1	350.00	1 ~~350.00~~	350.00	100
IX-11.	Underground Power Service	150	3.00	-0-	-0-	-0-
IX-12a.	Drop pipe, Level Tube, Cable	300	4.92	-0-	-0-	-0-
IX-12b.	Pitless Torque Check Valve	1	235.00	-0-	-0-	-0-
IX-13.	Exterior Pipe, valves & Emb.	1	2,400.00	-0-	-0-	-0-
IX-14.	Submersible Pump	1	3,100.00	-0-	-0-	-0-
A.	Backfilling of Abandoned Well	1	1.25	-0-	-0-	-0-
TOTAL					350.00	

BBrn 11/27/0?

92639.50

PAYMENT REQUEST NO. Three

FROM 11/15/90 TO 12/15/90

PROJECT TITLE: Cascade County Small Prospects Project

LOCATION: Cascade DSL-AMRB: 90-012

NAME OF CONTRACTOR: Shumaker Trucking & Excavating Contractors, Inc.

ADDRESS: P.O. Box 1442 Great Falls, MT 59403

CHANGE ORDERS		
No.	Description	Amount
2.	Stock Tank, Adit Clsr.	5,670.00
3.	Adkin's Water	500.00
4.	Lime	15,155.40
Total Change Orders		21,325.40

CONTRACT STATUS			
Total Amount	Completed Amount	Uncompleted Amount	Percent Complete
137,497.50	137,497.50	-0-	100

CONTRACT TO DATE INCLUDING CHANGE ORDERS $ 137,497.50

* For use only when securities are on deposit in lieu of retainage.

TOTAL RETAINAGE $ _____

SECURITIES ON DEPOSIT $ _____

ADJUSTED RETAINAGE $ _____

COMPLETED TO DATE	$137,497.50
PLUS MATERIALS ON SITE	$ -0-
TOTAL COMPLETED TO DATE	$137,497.50
LESS RETAINAGE	$ -0-
TOTAL AMOUNT EARNED TO DATE	$137,497.50
LESS PREVIOUS PAYMENTS	$ 93,394.02
AMOUNT DUE THIS PAYMENT	$ 44,103.48
LESS 1% TAX	$ 441.03
TOTAL DUE CONTRACT	$ 43,662.45

I certify that this claim is correct and just in all respects and that payment or credit has not been received.

Shumaker Trucking & Excavating Contractors, Inc.
Contractor

By Joe Aline
Joe Aline, Proj. Manager

Date 1/10/91

APPROVED BY:

DSL
Owner

By Larry Mandell

Date 2/4/91

DH 2/4/91

RECOMMENDED BY:

ROBERT PELLA & ASSOC
Engineer

By Robert B Morton

Date 1/23/91

ITEMIZATION OF QUANTITIES AND COSTS

Item	Description	Estimated Item Quantity	Unit Price Bid	Units of Work Completed To Date	Total Cost of Complete Work	Percent Complete
I -1.	Mobilization	L.S.	3,500.00	3,500.00	3,500.00	100
-1.	Cover Soil	2,131	2.25	1,692 c.y.	3,807.00	80
-2.	Probe Collapsed Adit	1	800.00	-0-	-0-	-0-
-3.	Close Mine Opening	5	800.00	1	800.00	20
-4.	Waste Pile Disposal > 30'	2,890	2.00	1,792 c.y.	3,584.00	62
-5.	Waste Pile Disposal < 30'	350	3.50	350 c.y.	1,225.00	100
-6.	Lime	16.5	65.00	16 tons	1,040.00	97
-7.	Fertilize, Seed & Mulch	1.75	1,500.00	3 acres	4,500.00	171
-8.	Provide Water	38,862	0.014	-0-	-0-	-0-
-9.	Farm Fence	4,900	1.20	4,451 L.F.	5,341.20	89
I -1.	Cover Soil	800	2.25	700 c.y.	1,575.00	77
II-2.	Probe Adit Opening	1	900.00	1	90.00	100
II-3.	Adit Closure	1	1	-0-	-0-	-0-
II-4.	Waste Pile Disposal & Dike	375	2.00	375 c.y.	750.00	100
II-5.	Lime	40	65.00	33.5 ton	2,177.50	84
II-6.	Fertilize, Seed & Mulch	1.0	2,200.00	1 acre	2,200.00	100
II-7.	Provide Water	4,500	-0-	-0-	-0-	-0-
II-8.	Farm Fence	1,220	1.60	1,193 L.F.	1,908.80	98
II-9.	Mobilization Chicken	L.S.	4,500.00	4,500.00	4,500.00	100
III-1.	Cover Soil	500	2.25	583 c.y.	1,311.75	117
III-2.	Probe Collasped Adit	1	150.00	1	150.00	100
III-3.	Adit Closure	1	300.00	1	300.00	100
III-4.	Waste Pile Disposal	650	1.25	650 c.y.	812.50	100
III-5.	Haul	500	3.00	-0-	-0-	-0-
III-6.	Debris & Structure	830	1.25	830 c.y.	1,037.50	100
III-6a	Rock Wall Removal	140	17.00	288 c.y.	4,896.00	206
III-7.	Lime	4.5	97.00	10 tons	970.00	222
III-8.	Fertilize, Seed & Mulch	1.0	1,500.00	1 acre	1,500.00	100
III-9.	Provide Water	7,800	0.025	7,800 gals	195.00	100
III-10	Farm Fence	650	1.20	710 L.F.	852.00	109
III-11	Adit Drainage System	1	950.00	1	850.00	100
TOTAL					49,873.25	

ITEMIZATION OF QUANTITIES AND COSTS

Item	Description	Estimated Plan Quantity	Unit Price Bid	Units of Work Completed To Date	Total Cost of Complete Work	Percent Complete
I-1.	Adit Closure	4	750.00	4	3,000.00	100
I-1.	Adit Closure	1	750.00	1	750.00	100
I-2.	Adit Closure	1	750.00	1	750.00	100
I-1.	Cover Soil	1,200	2.00	1,200 c.y.	2,400.00	100
I-2.	Prob. Collapsed Adit	2	90.00	2.	180.00	100
I-3.	Adit Closure	5	500.00	7	3,500.00	140
I-4.	Adit Closure	1	400.00	-0-	-0-	-0-
I-5.	Waste Pile Disposal	935	1.75	1,031 c.y.	1,304.25	108
I-6.	Lime	10	65.00	16 tons	1,040.00	84
I-7.	Fertilize, Seed & Mulch	1.5	1,500.00	1.5 acres	2,250.00	100
I-8.	Provide Water	11,460	0.025	-0-	-0-	-0-
I-9.	Farm Fence	2,310	1.20	2,294 L.F.	2,752.80	99
II-1.	Cover Soil	655	2.00	655 c.y.	1,310.00	100
II-2.	Adit Seal	1	750.00	1	750.00	100
II-3.	Waste Pile Disposal	585	1.75	585 c.y.	1,023.75	100
II-4.	Debris & Struc. Disp.	653	1.75	653 c.y.	1,142.75	100
II-5.	Dike Embankment	410	6.00	410 c.y.	2,460.00	100
II-6.	Lime	5	65.00	11 tons	715.00	220
II-7.	Fertilize, Seed & Mulch	1	1,500.00	1.5 acres	2,250.00	150
II-8.	Farm Fence	1,900	1.20	1,221 L.F.	1,465.20	64
II-9.	Provide Water	14,900	0.025	14,900 gal.	372.50	100
II-10.	Adit Drain System	1	1,250.00	1	1,250.00	100
IX-1.	Set up & Removal	L.S.	2,500.00	2,500.00	2,500.00	100
IX-2.	Drill for 8" I.D. Casing	300	48.00	300	14,400.00	100
IX-3.	Furn. & Install 8" Casing	300	14.50	300	4,350.00	100
IX-4.	Perforation of Casing	50	23.00	-0-	-0-	-0-
IX-4a.	Furn. & Install Well Screen	20	85.00	20	1,700.00	100
IX-5.	Surge & Develope Well	L.S.	780.00	L.S.	780.00	100
IX-6.	Surge & Develope Well	Per Hour	130.00	6	780.00	100
IX-7.	Test Pump 6 hrs	L.S.	510.00	L.S.	510.00	100
IX-8.	Test Pump < 6 hrs	Per Hour	85.00	24	2,040.00	400
TOTAL					158,226.25	

ITEMIZATION OF QUANTITIES AND COSTS

Item	Description	Estimated Plan Quantity	Unit Price Bid	Units of Work Completed To Date	Total Cost of Complete Work	Percent Complete
IX-9.	Furnish & Install Steel Cap	1	85.00	1	85.00	100
IX-10.	Seal & Grout to 20 ft.	1	350.00	L.S.	350.00	100
IX-11.	Underground Power Service	150	3.00	175	525.00	117
IX-12a	Drop pipe, Level Tube, Cable	300	4.92	280	1,377.60	93
IX-12b	Pitless Torque Check Valve	1	235.00	1	235.00	100
IX-13.	Exterior Pipe, valves & Fmb.	1	2,400.00	L.S.	2,400.00	100
IX-14.	Submersible Pump	1	3,100.00	L.S.	3,100.00	100
	Backfilling of Abandoned Well	1	1.25	-0-	-0-	-0-
					8,072.60	

Page 1	49,873.25
Page 2	58,226.25
Page 3	8,072.60
TOTAL	$116,172.10

ATTACHMENT 4

MISCELLANEOUS PROJECT DOCUMENTS

Notice to Proceed
Preconstruction Conference Agenda
Certificate of Substantial Completion
Affidavit on Behalf of Contractor
Consent of Surety Company to Final Payment
Certificate of Completion

NOTICE TO PROCEED

TO: Shumaker Trucking & Excavating
Contractors, Inc.
P.O. Box 1442
Great Falls, MT 59403

DATE: 7/30/90
PROJECT: Cascade County Small Prospects

DSL-AMRB: 90-012

In accordance with the Agreement dated July 27, 19 90, you are hereby notified to commence Work no later than August 6, 19 90, and you are to complete the Work within 96 consecutive calendar days thereafter. The date of completion of all Work is, therefore, November 10, 19 90.

OWNER: DEPARTMENT OF STATE LANDS

By: Larry Marshall
Title: Bureau Chief

ACCEPTANCE OF NOTICE TO PROCEED

Receipt of the above Notice to Proceed is hereby acknowledged this 8th day of August, 19 90.

CONTRACTOR: SHUMAKER TRUCKING & EXCAVATING CONTRACTORS, INC.

By:
Title: Joseph G. Aline, Sec./Treas.

Rev. 7/90

PRECONSTRUCTION CONFERENCE AGENDA

Project: Cascade County Small Prospects Project

Date: July 30, 1990 Time: 1:00 p.m.

Location: Centerville Park, Centerville, Montana

AMRB Representatives: Dale Herbort, Reclamation Specialist

Attendees: *(Sign in on sheet)*

Discussion

- **Project Organization:**

  DSL Abandoned Mine Reclamation Bureau: Dale Herbort

  Engineer: Robert Peccia & Associates: Robert Morton, Project Manager
  Dale Wells, Inspector

  Contractor: Shumaker Trucking:

  Subcontractors:

  Other representatives:

- **Purpose of Meeting**

  - Introduce and designate responsible personnel
  - Establish working relationship
  - Discuss project requirements

- **Contractor's Tentative Schedule**

  - Contract Time — Start Date AUGUST 6 1990
    Completion Date

  - Normal Work Week

- **Contractor's Submittals**
  - Construction schedules
  - Traffic Plan
  - Lime, seed, fertilizer, and mulch certifications (if applicable)
  - Other Technical Specification sections
  - Substitutions
- **Applications for Payment**
  - Review of General Conditions
  - Review of Measurement and Payment
  - Materials on site
- **Specific DSL Requirements and Procedures**
  - Interim inspections
  - Safety meetings
  - Certified payrolls —
- **Critical Work Sequencing**
  - Material ordering and delivery
  - Liming, topsoiling, and seeding (if applicable)
- **Field Decisions, Work Directives, and Change Orders**
  - Review of General Conditions
- **Use of Premises, Storage Areas, Security, Field Office**
- **Contractor's Assignments for Safety and First Aid**
  - Review Safety Standards, Special Provisions
- **Progress Meetings**
- **Inspection and Testing**
  - Review General Conditions
- **Comments by Other Representatives**
  - DSL Abandoned Mine Reclamation Bureau
  - Others
- **Distribution of Additional Sets of Specifications and Plans to Contractor**

(Note: A copy of Preconstruction Meeting summary to be mailed to all participants.)

NAMES OF PERSONS ATTENDING

☐ PREBID CONFERENCE
☒ PRECONSTRUCTION CONFERENCE
☐ MONTHLY MEETING

FOR CASCADE COUNTY SMALL PROSPECTS **PROJECT**
CASCADE **COUNTY, MT - MONT A/E or DSL-AMRB** 90-012

DATE: July 30, 1990 **TIME:** 1:00 p.m.

Name	Address	Affiliation	Telephone Number
Jim Thoroughman	Box 1442 Gt. Falls	Shumaker Trkng	727-3537
Douglas E Solomon	2727 Airport Rd Helena	Hydrometrics	443-4150
Joe Aline	P.O. Box 1442	Shumaker	727-3537
Dale Hall	Helena MT	EPA	447-5160
Bob Wilson	" MT	EPA	"
Dale Herbert	CAPITAL STATION Helena	DSL-AMRB	444-2074

ROBERT PECCIA & ASSOCIATES
Planners - Engineers - Designers
P.O. BOX 5653 310 HIALEAH COURT
HELENA, MONTANA 59604 (406) 442-8160

CASCADE COUNTY SMALL PROSPECTS AMR
DSL-AMRB 90-012

August 3, 1990

MEMORANDUM

To: All Participants

Re: Summary of Preconstruction Conference

The Preconstruction Conference for the Cascade County Small Prospects AMR Project convened at 1:00 p.m. on Monday, July 30, 1990. The following individuals were in attendance:

Robert Morton, Robert Peccia & Associates
Dale Wells, Robert Peccia & Associates
Joe Aline, Shumaker Trucking
Jim Thoroughman, Shumaker Trucking
Dale Herbort, Abandoned Mine Reclamation Bureau
Doug Schwind, Hydrometrics

Following introduction and designation of key personnel, the subject of contract time was discussed. Robert Morton, Project Manager, announced that reclamation site "Centerville C" had been dropped from the project. Consequently, contract time would be reduced to an amount proportionate to the reclamation cost of the site. A change order to reduce contract time from 120 days to 96 days was introduced.

Joe Aline, Shumaker Trucking, voiced his opposition to the change order and objected emphatically to the contract time reduction. Shumaker Trucking challenged the motive of the time reduction and argued that their price for the project was based on the 120-day contract duration to coincide with their other commitments.

Robert Morton contended that contract time was already excessive and with the reduction of work, a reduction in time was justifiable; additional cost to the Department of State Lands (DSL) in extra inspection was an unnecessary expense considering the size of the project. A 20% time reduction for a 20% decrease in project work based on cost was an equitable solution. He added that the Contractor would expect additional time for a work increase so we expect the same consideration. Dale Herbort, DSL, agreed with the argument that 120 days was too long for the amount of work required

on this project. Doug Schwind, Hydrometrics, remarked that the original contract time was set at 120 days due to site conditions (seasonally wet) of the Chicken Coulee reclamation site and as a consideration to the landowner's concerns regarding access problems. He felt the contract time was reasonable.

Dale Herbort suggested negotiating a compromise to the solution. Joe Aline preferred a 30-day shutdown after earthwork to be followed by seeding after October 15. This was a satisfactory compromise so the change order was delivered to Shumaker Trucking for approval pending review by Gene Shumaker.

The Preconstruction Conference continued with a review and discussion of pertinent topics:

- Submittals required prior to project start-up, including work schedule, limestone analysis, and pipe certifications.
- Material substitutions require prior approval.
- Discussion of applications for payment; quantities to be agreed on between Project Superintendent, Jim Thoroughman, and Resident Inspector, Dale Wells.
- DSL procedures; on-site meeting with Dale Herbort approximately every two weeks.
- Safety; Contractor's responsibility, OSHA standards.
- Critical work sequence, primarily involves well drilling and reclamation at Chicken Coulee.
- Change order procedures, including defining of work directives and field changes.
- Blasting requirements; all personnel required to be licensed; insurance.
- Pay and progress meetings - every two weeks with DSL plus non-scheduled visits.
- Testing requirements.

The conference concluded with individual site visits and reviews of Centerville North and South, Number Five Coulee, and Cottonwood Creek reclamation sites. The conference concluded at 4:00 p.m. with a schedule construction start-up of August 6.

Any corrections or additions to these minutes are welcome.

ROBERT PECCIA & ASSOCIATES

Robert B Morton for
Dale Wells
Resident Inspector

DAW/mje

CERTIFICATE OF SUBSTANTIAL COMPLETION

TO: Abandoned Mine Reclamation Bureau, MT Dept. of State Lands OWNER

PROJECT TITLE: Cascade County Small Prospects AMR Project

MONT A/E or DSL-AMRB: 90-012

CONTRACT DATE: 7/27/90

LOCATION: Cascade County, Montana

PROJECT OR PART SHALL INCLUDE: Nine work schedules and three change orders

CONTRACTOR: Shumaker Trucking & Exc.

ADDRESS: P.O. Box 1442
Great Falls, MT 59403

TELEPHONE NO: 406/727-3537

SUBSTANTIAL COMPLETION DATE: 12/15/90

DSL INSPECTION DATE: 1/91

ENGINEER: Robert Peccia & Associates
Helena, MT

PERFORMANCE BOND NO: 400JC8461

DATE OF BOND: 6/29/90

SURETY: St. Paul Mercury Insurance Co.

MONTANA AGENT: Cogswell Agency

ADDRESS: P.O. Box 2009
Great Falls, MT 59403

The Work performed under this Contract has been inspected by authorized representatives of the Owner, Contractor, and Engineer, and the Project (or specified part of the Project, as indicated above) is hereby declared to be substantially completed on the above date.

DEFINITION OF SUBSTANTIAL COMPLETION

The date of substantial completion of a project or specified area of a project is the date when the construction is sufficiently completed, in accordance with the contract documents, as modified by any change orders agreed to by the parties, so the Owner can occupy or utilize the project or specified area of the project for the use for which it was intended.

A tentative list of items to be completed is appended hereto. This list may not be exhaustive, and the failure to include an item on it does not alter the responsibility of the Contractor to complete all the Work in accordance with the Contract Documents.

ENGINEER: ROBERT PECCIA & ASSOC.

By Robert B Morton 1/18/91
Authorized Representative Date

The Contractor accepts the above Certificate of Substantial Completion and agrees to complete and correct the items on the tentative list within the time indicated.

CONTRACTOR: Shumaker Trucking & Excavating Contractors, Inc.

By [signature] 1/22/91
Authorized Representative Date
Joe Aline, Project Manager

The Owner accepts the Project or specified area of the Project as substantially complete and will assume full possession of the project or specified area at 6pm (time), on 12/15/91 (date). The responsibility for heat, utilities, security, and insurance under the Contract Documents shall be as set forth under "Remarks" below.

OWNER: DSL

By [signature] E.E.
Authorized Representative Date

Remarks: (Attach additional sheet, if necessary)

Rev 7/90

AFFIDAVIT ON BEHALF OF CONTRACTOR

STATE OF Montana)
: ss
COUNTY OF Cascade)

MONT A/E or DSL-AMRB: 90-012

DATE: 1/22/91

I certify to the best of my knowledge and belief that all work has been performed and materials supplied in strict conformance with the terms and conditions of the corresponding contract documents between State of Montana, DSL/AMRB, the Owner, and Shumaker Trucking & Excavatingthe Contractor, dated July 27/90 for the Cascade County Small Prospects Project Project, Mont A/E or DSL-AMRB 90-012, and further declare that all bills for materials, supplies, utilities, and for all other things furnished or caused to be furnished by the above-named Contractor and used in the execution of the above Contract have been fully paid, and there are no unpaid claims or demands of State Agencies, [redacted] mechanics, laborers or any others resulting from or arising out of work done or ordered lo be done by said Contractor under the above-identified Contract. Subcontractors & Materialmen will be paid within 10 days of Contractor receiving acceptance & payment from Owner. In consideration of the prior and final payments made and all payments made for authorized changes, the Contractor releases and forever discharges the Owner from any and all obligations and liabilities arising by virtue of said Contract and authorized changes between the parties hereto, either verbal or in writing, and any and all claims and demands of every kind and character whatsoever against the Owner, arising out of or in any way relating to said Contract, and authorized changes.

This statement is made for the purpose of inducing lhe Owner to make Final Payment under the terms of the Contract, relying on the truth and statements contained therein.

Dated this 22nd day of January, 19 91, at Great Falls, Montana.

CONTRACTOR: Shumaker Trucking & Excavating Contractors, Inc.

By: [signature]
Title: Joe Aline, Project Manager

Subscribed and sworn to before me this 22nd day of January, 19 91.

[signature] Carla M. Sprague
Notary Public for the State of Montana
Residing at Fort Shaw
My commission expires 5/8/93

(SEAL)

Rev. 7/90

CONSENT OF SURETY COMPANY TO FINAL PAYMENT

(From AIA Document G707)

OWNER ☐
ENGINEER ☐
CONTRACTOR ☐
SURETY ☒
OTHER ☐

PROJECT: Cascade County Small Prospects, Abandoned Mine Reclamation Project
(name, address)

TO (Owner)
Abandoned Mine Reclamation Bureau
1625 Eleventh Ave.
Helena, MT 59620

MONT A/E or
DSL-AMRB NO.: 90-012

CONTRACT FOR:

CONTRACT DATE: 7/27/90

CONTRACTOR: Shumaker Trucking & Excavating Contractors, Inc.
P.O. Box 1442
Great Falls, MT 59404

In accordance with the provisions of the Contact between the Owner and the Contractors indicated above, the Cogswell Agency, P.O. Box 2008 Great Falls, MT (here insert name and address of Surety Company), SURETY COMPANY, on bond of Shumaker Trucking & Excavating (here insert name and address of Contractor), CONTRACTOR, hereby approves of the final payment to the Contractor, and agrees that final payment to the Contractor shall not relieve the Surety Company of any of its obligations to Dept. of State Lands, AMRB (here insert name and address of Owner), OWNER, as set forth in the said Surety Company's bond.

IN WITNESS WHEREOF, the Surety Company has hereunto set its hand this 22nd day of January, 1991.

ST. PAUL FIRE & MARINE INSURance COMPANY
Surety Company

COGSWELL AGENCY
RESIDENT AGENT

By _____

Signature of Authorized Representative

Attest:
(Seal)

attorney

Title

NOTE: This form is to be used as a companion document to the Affidavit on Behalf of Contractor (current edition).

Rev.

CONTRACTOR'S CERTIFICATE OF COMPLETION

TO (Owner): MT DSL/AMRB

1625 Eleventh Ave.

Helena, MT 59620

ATTN: Engineer Peccia & Associates

DATE: 12/15/90

PROJECT TITLE: Cascade County Small Prospects Reclamation Project

MONT A/E or DSL-AMRB: 90-012

CONTRACT DATE: 7/27/90

FROM: Shumaker Trucking & Excavating Contractors, Inc.
(Firm or Corporation)

This is to certify that I, Joe Aline, am an authorized official of Shumaker Trucking & Excavating Contractors, Inc., working in the capacity of Project Manager and have been properly authorized by said firm or corporation to sign the following statements pertaining to the subject contract:

I know of my own personal knowledge, and do hereby certify, that the work of the contract described above has been performed, and materials used and installed in every particular, in accordance with, and in conformity to, the Contract Plans and Specifications.

The contract work is now complete in all parts and requirements and ready for your final inspection.

I understand that neither the determination of the Engineer that the work is complete nor the acceptance thereof by the Owner shall operate as a bar to claim against the Contractor under the terms of the guarantee provisions of the Contract Documents.

CONTRACTOR: Shumaker Trucking & Excavating Contractors, In

By: _____
Title
Joe Aline, Project Manager

Distribution:
1. Project Manager
2. Field Office
3. File

Rev. 7.90

ATTACHMENT 5

WEED CONTROL PLAN

ROBERT PECCIA & ASSOCIATES
Planners - Engineers - Designers
P.O. BOX 5653 810 HIALEAH COURT
HELENA, MONTANA 59604 (406) 442-8160

September 4, 1990

Dale Herbort, Reclamation Specialist
Abandoned Mine Reclamation Bureau
Montana Dept. of State Lands
1625 Eleventh Ave.
Helena, MT 59620

Re: Cascade County Small Prospects

Dear Dale:

Enclosed is the Weed Control Plan for Larry Marshall's signature. Please send me a signed copy for my file.

We should discuss the weed control situation on Mr. Pribyl's property after he sends you his applicator's certification.

Sincerely,

ROBERT PECCIA & ASSOCIATES

Robert B. Morton
Reclamation Scientist

RBM/mje
Enc. 1

WEED CONTROL PLAN

Cascade County Small Prospects Project

The Department of State Lands, Abandoned Mine Reclamation (AMR) Bureau hereby submits this Weed Control Plan to the Cascade County Weed Control Board as required by the Montana County Noxious Weed Management Act. Rule 7-22-2121, New Section C (3) (a) states, "The person or agency disturbing the land shall submit to the board a written plan specifying the methods to be used to accomplish revegetation. The plan must describe the time and method of seeding, fertilization practices, recommended plan species, use of weed-free seed, and weed management procedures to be used."

The attached Invitation For Bid package, DSL-AMRB 90-012, covers most of the above requirements under the following sections: (1) Section IV, Special Provisions, Subsection 5.14, Soil Amendments, Seedbed Preparation, and Seed Mix; and (2) Standard Specifications, Subsection 320.00 Fertilizing and Seeding, and Subsection 330.00 Mulch.

Upon completion of the Cascade County Small Prospects Project, the Bureau will continue to monitor the site biannually for any further abandoned mine hazards and any growth of noxious weeds. If any noxious weeds listed by the Cascade County Weed District appear on the reclamation site, the County Weed Supervisor will be notified immediately.

The most effective method of control will be implemented according to the District's noxious weed program. The AMR Program assumes responsibility for weed control on all AMR sites during reclamation construction and for one year after the date of reclamation completion. After one year the weed control responsibility reverts back to the deeded landowner.

The Weed Control Plan for the Cascade County Small Prospects Project is officially approved and in effect until one year after the completion of the reclamation construction when executed by the following officials.

Lawrence G. Marshall, Chief
Abandoned Mine Reclamation Bureau
Department of State Lands

Date

James B. Freeman

Jim Freeman, ~~Administrator~~ Supervisor
Cascade County Weed Control ~~Board~~

8/29/90
Date

Doug Johnson

Doug Johnson, ~~Supervisor~~ Administrator
Cascade County Weed District

8/29/90
Date

ATTACHMENT 6

QUALITY ASSURANCE TESTING

Water Analysis
Soil Analysis
Lime Analysis

MONTANA LIMESTONE COMPANY

WARREN, MONTANA

Plant & Office
(406) 764-2511

LABORATORY REPORT

DATE 11/20/90

REPORT# 54603

[illegible]
[illegible]
[illegible]
[illegible]

CERTIFIED SIEVE ANALYSIS OF LIMESTONE

SAMPLE SUBMITTED DATE 11/20/90

SAMPLE IDENTIFICATION DSC-AM#13-90-E018

SIEVE SIZE	% PASSING BY WEIGHT
[illegible]	100
[illegible]	95

SAMPLE TESTED IN ACCORDANCE WITH ASTM STANDARDS

TESTED BY: C. Kightlinger

TITLE OF TECHNICIAN

REPORT

STILL

Hazen Research, Inc.
4601 Indiana St. • Golden, Colo. 80403
Tel: (303) 279-4501 • Telex 45-860
FAX: (303) 278-1528

RECEIVED
NOV - 9 1990

DATE	November 5 1990
HRI PROJECT	009-276
HRI SERIES NO.	J176/90
DATE RECD.	10/9/90
CUST P.O.#	FG-8656

Montana Limestone Company
Mr. Rick D. Shaw
Post Office Box 463
Bridger Montana 59014

REPORT OF ANALYSIS

SAMPLE NO. J176/90-1
SAMPLE IDENTIFICATION: November 1990 Sampled 10/1/90 (Crushed Limestone)

Moisture,%	0.04
Free Silica as SiO2,%	0.6
Calcium as CaCO3,%	95.3
Magnesium as MgCO3,%	0.590

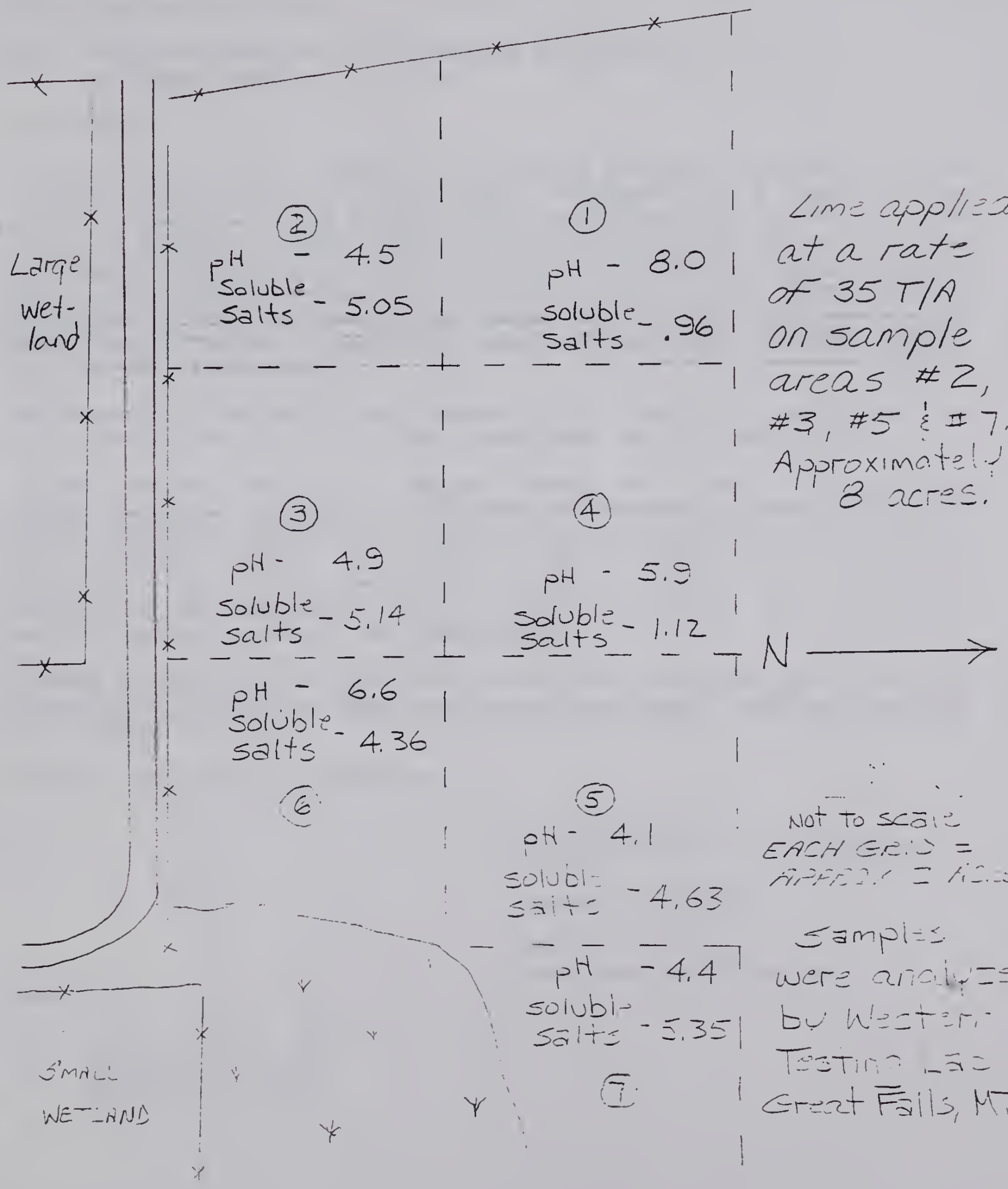
SAMPLE REJECT

By:
Robert Rostad
Laboratory Manager

Robert Peccia & Associates

DATE 11/2/90	BY D. Wells	CHK.	PROJ. NO.	PAGE

SAMPLING LOCATION & TEST RESULTS
JOHNSON FIELD NEUTRALIZATION



Lime applied at a rate of 35 T/A on sample areas #2, #3, #5 & #7. Approximately 8 acres.

NOT TO SCALE
EACH GRID = APPROX. 1 ACRE

Samples were analyzed by Western Testing Lab Great Falls, MT

ROBERT PECCIA & ASSOCIATES
Planners - Engineers - Designers
P.O. BOX 5653 825 CUSTER AVENUE
HELENA, MONTANA 59604 (406) 442-8160

December 12, 1990

Gene Shumaker
Shumaker Trucking & Excavating
P.O. Box 1442
Great Falls, MT 59403

RE: Cascade County Small Prospects AMR Project,
DSL AMRB 90-012

Dear Gene:

As you know, we have sampled and analyzed the lime delivered to the Johnson field site of the project. Enclosed is a copy of the analysis results. From this analysis only samples #8, #9, and #11 pass the gradation specifications without requiring additional lime to make up for the sieve size deficiency. Technical specifications 301.02.A&B indicates that if the actual size is more than 3% below submitted value the contractor shall make up the difference with additional lime. Most loads fell short of the required 100% passing the No. 60 sieve size.

To determine the additional quantity of lime to be added to the site per the contract, we have developed the attached table.

Of the 308.19 tons of lime you delivered, 55.6 tons would not pass specifications. Therefore, the effective amount delivered is 252.59 tons. The total amount of pure lime to be applied (280 tons) and the effective amount delivered to date (252.59 tons) yields a deficit of 27.41 tons. Derating for purity (95.3%), the additional amount to be delivered is 28.76 tons (assuming the additional amount meets the specified gradation).

Please contact me when you plan to deliver and apply the remaining lime. We will need to observe placement and take a sample to verify sieve size.

Contact me with any questions.

Sincerely,
ROBERT PECCIA & ASSOCIATES

Robert B. Morton
Reclamation Scientist

RBM/kjm

cc: Dale Herbort, AMRB
Stu Levit, AMRB
Dale Wells, RPA

Chen-Northern, Inc.

A member of the HIH group of companies

528 SMELTER AVENUE
P. O. BOX 949
GREAT FALLS, MT 59403
(406) 453-1641
FAX (406) 727-2070

TECHNICAL REPORT

REPORT TO:

ROBERT PECCIA & ASSOCIATES (2)
825 CUSTER AVENUE
HELENA, MT 59601

DATE: Dec. 7, 1990
JOB NUMBER: 80-177
SHEET: 1 OF 1
INVOICE NO.: 101024

REPORT OF: Sieve Analysis of Lime, Cascade Small Prospects AMR

Sample Identification:
On December 4, 1990 we received eleven (11) samples of lime, sampled by your personnel from the above referenced project. We were instructed to perform sieve analysis tests on each sample. Tests were performed in general accordance with ASTM procedures.

TEST RESULTS:

Lab No.	46342	46343	46344	46345	46346	Reported
Field No.	#1	#2	#3	#4	#5	Specifications
Screen or Sieve Size:	Percent Passing Screen or Sieve Size Shown					
No. 4			100	100	100	
No. 8	100	100	99	99	98	
No. 16	99	99	98	97	97	
No. 40	57	65	97	96	96	
No. 60	34	39	95	93	94	100
No. 80	23	26	91	89	90	
No. 100	18	20	89	87	88	50 Min.
No. 200 (wash)	7.9	7.4	77	76	77	

Lab No.	46347	46348	46349	46350	46351	46352	Reported
Field No.	#6	#7	#8	#9	#10	#11	Specifications
Screen or Sieve Size:	Percent Passing Screen or Sieve Size Shown						
No. 4	100	100			100		
No. 8	99	99			99		
No. 16	98	98			98	100	
No. 40	98	97			95	99	
No. 60	95	94	100	100	94	98	100
No. 80	92	91	99	99	91	96	
No. 100	89	88	98	99	90	95	50 Min.
No. 200(wash)	78	77	89	89	80	84	

REVIEWED BY: Kenneth D. Mundal

JOHNSON FIELD LIME REQUIREMENT

LOAD/SAMPLE NUMBER	LOAD INVOICE NUMBER	QUANTITY DELIVERED		% PASSING NO. 60 SIEVE	ADD. LIME REQ. FOR >60 SIEVE TONS	% PURITY	ADD. LIME REQ. FOR PURITY TONS	TOTAL ADD. LIME REQ/LOAD TONS
		POUNDS	TONS					
1	5104	60070	30.04	34	19.83	95.3	1.41	21.24
2	5400	42820	21.41	39	13.06	95.3	1.01	14.07
3	5385	43710	21.86	95	1.09	95.3	1.03	2.12
4	5457	45120	22.56	93	1.58	95.3	1.06	2.64
5	5456	36150	18.08	94	1.08	95.3	0.85	1.93
6	5463	40100	20.05	95	1.00	95.3	0.94	1.94
7	5489	57400	28.70	94	1.72	95.3	1.35	3.07
8	5490	56900	28.45	100	0.00	95.3	1.34	1.34
9	5507	66750	33.38	100	0.00	95.3	1.57	1.57
10	5535	58500	29.25	94	1.76	95.3	1.37	3.13
11	5536	57560	28.78	98	0.00	95.3	1.35	1.35
12	5554	51260	25.63	ASSUME 97-100	0.00	95.3	1.20	1.20
		616340	308.19		41.12		14.48	55.60

ENERGY LABORATORIES, INC.
P.O. BOX 30916 • 1107 SOUTH BROADWAY • BILLINGS, MT 59107-0916 • PHONE (406) 252-6325
FAX (406) 252-6069 • 1-800-873-5227

LABORATORY REPORT

TO: Robert Morton
ADDRESS: Peccia & Associates
P.O. Box 5653
Helena, MT 59601

LAB NO.: 90-33860
DATE: 12/18/90 dya

WATER ANALYSIS

Centennial Park
Sampled 12/05/90 @ 1300
Submitted 12/10/90

Constituent	mg/l (ppm)
Calcium	87
Sulfate	174
Specific Conductance @ 25°C	634 μmhos/cm
Total Dissolved Solids @ 180°C	464
pH, s.u.	7.4
Total Hardness as CaCO3	348
Total Alkalinity as CaCO3	178
Total:	
Aluminum	<0.1
Cadmium	<0.001
Copper	<0.01
Iron	0.04
Lead	<0.01
Manganese	<0.02
Zinc	0.33
Arsenic	<0.005

ENERGY LABORATORIES, INC.
P.O. BOX 30916 • 1107 SOUTH BROADWAY • BILLINGS, MT 59107-0916 • PHONE (406) 252-6325
FAX (406) 252-6069 • 1-800-873-5227

LABORATORY REPORT

TO: Robert Morton
ADDRESS: Peccia & Associates
P.O. Box 5653
Helena, MT 59601

LAB NO.: 90-33859
DATE: 12/18/90 dya

WATER ANALYSIS

Centennial Park
Sampled 12/04/90 @ 1300
Submitted 12/10/90

Constituent	mg/l (ppm)
Calcium	85
Sulfate	171
Specific Conductance @ 25°C	625 µmhos/cm
Total Dissolved Solids @ 180°C	508
pH, s.u.	7.6
Total Hardness as CaCO3	342
Total Alkalinity as CaCO3	178
Total:	
Aluminum	<0.1
Cadmium	<0.001
Copper	<0.01
Iron	<0.03
Lead	<0.01
Manganese	<0.02
Zinc	0.25
Arsenic	<0.005

ATTACHMENT 7

PUMP TEST RESULTS
OBSERVATION WELL MEASUREMENTS
WELL LOG

Robert Peccia & Associates

DATE 12/4-12/5/90	BY	CHK.	PROJ. NO.	PAGE

MINERAL CENTENNIAL PARK WELL
PUMP TEST

	TIME	ELAPSED TIME (MIN.)	DEPTH TO GW (FEET)	DRAWDOWN FEET	FLOW GPM
12/4	1:00 P	0	161.0	0	110
	1:01	1			
	1:02	2	161.0		110
	1:03	3			
	1:04	4			110
	1:05	5	161.0		
	1:10	10			
	1:15	15	161.0		110
	1:20	20	161.0		110
	1:25	25	161.0		
	1:30	30			
	1:40	40			
	1:50	50			
	2:00	60			
	2:30	90			
	3:00	120			
	3:30	150	161.0		
	4:00	180	161.1	0.1	110
	4:30	210			
	5:00	240			
	5:30	270			
	6:00	300			
	7:00	360			
	8:00	420			
	9:00	480			
	10:00	540			
	11:00	600			
12/5	1:00 A	720	161.2	0.2	110
	3:00	840			
	5:00	960			
	7:00	1080	161.3	0.3	110
	9:00	1200			
	11:00	1320	161.4	0.4	110
	1:00 P	1440			

PUMP OFF	RECOVERY FEET	PUMP OFF	RECOVERY FEET
0.5	0	10	
1		20	
2	0.1	30	0.2
3		60	
4		120	
5	0.1	240	0.3
		300	0.4

Form No. 603 (R 6-87)

File No. _____

MAR 1 ; 1991

WELL LOG REPORT

State law requires that this form be filed by the water well driller within 60 days after completion of the well.

ROBERT PECCIA & ASSOCIATES

1. WELL OWNER
Name Miners Centenial Park Board

2. CURRENT MAILING ADDRESS
C/O Judie Guisti P.O. Box 93
Sand Coulee, MT 59472

3. WELL LOCATION
County Cascade
Township 19 (N)S Range 5 (E)W
NW 1/4 NE 1/4 Section 19
Lot _____ Block _____
Subdivision _____
Tract Number _____

4. PROPOSED USE Domestic ☐ Stock ☐ Irrigation ☒
Other ☐ specify _____

5. DRILLING METHOD _____ cable, X air rotary, _____ forward rotary, _____ reverse rotary, _____ jetted, _____ other (specify) _____

6. WELL LOG

Depth (ft.) From	To	Formation
0'	5'	Topsoil, Sand
5	36	Sand & Clay
36	45	Broken Sandstone & Gravel
45	70	Gray Silt
70	73	Gravel & Sand
73	117	Brown & Gray Silt
117	129	Broken Limestone
129	300	White & Yellow Limestone

7. WELL CONSTRUCTION AND COMPLETION

Size of drilled hole	Size and PSI Rating of casing	From (feet)	To (feet)
12¼"	8" Steel .264 23.57 lbs per Foot	+2'	140'
8"	6" PVC sch 40	130'	270'
8"			
8"	6" PVC sch 40	290'	300'

Perforations _____ and/or Screen X

Kind Size	From (feet)	To (feet)
6" Stainless Steel .030 Slott	270'	290'

Was casing left open end? _____ Yes X No
Was a packer or seal used? _____ Yes X No
If so, what material _____
Was the well gravel packed? _____ Yes X No
To what depth was the well grouted? 140' ft
Material used in grouting Cement & Bentonite
Well head completion: Pitless adapter X Yes _____ No
Top casing 18 in. or greater above grade X Yes _____ No

8. WELL TEST DATA

The pump test information request in this section is required for all wells. All depth measurements shall be from the top of the well casing unless otherwise specified.

All wells under 100 gpm must be tested for a minimum of one hour and provide the fotlowing information:

a) Air _____ Pump X Bailer _____
b) Static water level immediately before testing 165' ft. If flowing; closed-in pressure _____ psi _____ gpm
Controlled by: _____ valve, _____ reducers, _____ other, (specify) _____
c) Depth at which pump is set for test 270'
d) The pumping rate and means of discharge (i.e., bailing, airlift, (pumping)) 100 gpm
e) Maximum drawdown during the test 1' ft
f) Duration of test: Pumping time 24 hrs
Recovery time 2 hrs
g) Recovery water level 165' ft
Amount of time after pumping recovery level water data was taken 2 hrs

Wells intended to yield 100 gpm or more shall be tested for a period of 8 hours or more. The test shall foltow the development of the well, and shall be conducted continuously at a constant discharge at least as great as the intended appropriation. In addition to the above information, water level data shall be collected and recorded on the Department's "Aquifer Test Data" form included in each packet of well logs.

NOTE: All wells shall be equipped with an access port ½ inch minimum or a pressure gauge that will indicate the shut-in pressure of a flowing well. Removable caps are acceptable as access ports.

9. WAS WELL PLUGGED OR ABANDONED? _____ Yes X No
If yes, how? _____

10. DATE COMPLETED 2-12-91

11. DRILLER/CONTRACTOR'S CERTIFICATION

This well was drilled under my jurisdiction and this report is true to the best of my knowledge.

3-4-91
Date

Brian D. [illegible]

Robert Peccia & Associates

DATE 12/4 - 12/5/90	BY	CHK.	PROJ. NO.	PAGE

ST. PUC I
OBSERVATION WELL

TIME	ELAPSED TIME (MIN.)	DEPTH TO GW (FEET)	DRAWDOWN	FLOW
1:00 P	0	175.3 *		
1:01	1			
1:02	2			
1:03	3			
1:04	4			
1:05	5			
1:10	10			
1:15	15			
1:20	20			
1:25		25		
1:30		30		
1:40		40		
1:50		50	175.3 *	
2:00	2:25	60	85	175.1
2:30		90		
3:00		120		
3:30	3:40	150	160	175.1
4:00		180		
4:30		210		
5:00	5:15	240	255	175.1
5:30		270		
6:00		300		
7:00	7:15	360	375	175.3
8:00		420		
9:00	9:15	480	495	175.3
10:00		540		
11:00		600		
1:00 A	1:15	720	735	175.3
3:00		840		
5:00	5:15	960	975	175.3
7:00	7:15	1080	1095	175.4 *
9:00	9:15	1200	1215	175.3
11:00	11:15	1320	1335	175.5 *
1:00 P		1440		

* PUMP RUNS INTERMITTENTLY
RECHARGE IN PROGRESS

Robert Peccia & Associates

DATE 12/4 - 12/5/90	BY	CHK.	PROJ. NO.	PAGE

CENTERVILLE WATER USERS ASSOCIATION
OBSERVATION WELL

TIME	ELAPSED TIME (MIN.)	DEPTH TO GW (FEET)	DRAWDOWN	FLOW
1:00 P	0	170.0 *		
1:01	1			
1:02	2			
1:03	3			
1:04	4			
1:05	5			
1:10	10			
1:15	15			
1:20	20			
1:25	25			
1:30	30			
1:40	40		163.2	
1:50	50			
2:00	60			
2:15		75		
2:30	90		168.2	
3:00	120			
3:20		140		
3:30	150		168.0	
4:00	180			
4:30	210			
5:00	240			
5:20		260		
5:30	270		179.9 *	
6:00	300			
7:00	360		172.7 *	
7:40		400		
8:00	420			
9:00	480			
9:40		520	171.4 *	
10:00	540			
11:00	600			
1:00 A	720			
1:40		760	168.0	
3:00	840			
5:00	960			
540		1000	168.0	
7:00	1080			
7:40		1120	170.4 *	
9:00	1200			
9:40		1240	177.0 *	
11:00	1320			
11:40		1360	163.7	
1:00 P	1440			

* PUMP TURNED ON/OFF
RECHARGE NOTED

Robert Peccia & Associates

DATE 12/4 - 12/5/90	BY	CHK.	PROJ. NO.	PAGE

CENTERVILLE HIGH SCHOOL
OBSERVATION WELL

TIME	ELAPSED TIME (MIN.)	DEPTH TO GW (FEET)	DRAWDOWN	FLOW
1:00 P	0	162.7	0	
1:01	1			
1:02	2			
1:03	3			
1:04	4			
1:05	5			
1:10	10			
1:15	15			
1:20	20			
1:25	25			
1:30	30	162.7	0	
1:40	40			
1:50	50			
2:00	60			
2:30	90	162.7	0	
3:00	120			
3:30	150	162.7	0	
4:00	180			
4:30	210			
5:00	240			
5:30	270	162.7	0	
6:00	300			
7:00	360	162.7	0	
7:30	420			
8:00				
9:00	480			
10:00	540			
11:00	600			
12:00 A	720			
1:30	840	750	162.9	0.2
3:00				
5:00	960			
5:30	1080	990	163.0	0.3
7:00				
7:30	1200	1110	163.1	0.4
9:00				
9:30	1320	1230	163.1	0.4
11:00				
11:30	1440	1350	163.1	0.4
1:00 P				

ATTACHMENT 8

ANALYSIS OF CONSULTANT COSTS INCURRED

ANALYSIS OF CONSULTANT COSTS INCURRED
FOR THE MONTANA DEPARTMENT OF STATE LANDS
ABANDONED MINE RECLAMATION BUREAU
AMR PROJECT NUMBER: MONTANA A/E 90-012
CASCADE COUNTY SMALL PROSPECTS AMR PROJECT
RPA PROJECT NUMBER: #90-30.27
DATE OF PREPARATION: APRIL 8, 1991

ENGINEERING SERVICE	AMOUNT
CONSTRUCTION ENGINEERING AND PROJECT ADMINISTRATION COST FOR 1990 CONTRACT:	$44,399.59
CONSTRUCTION COST:	$137,497.50

PERCENTAGE ENGINEERING FEES TO CONSTRUCTION COST:

CONSTRUCTION ENGINEERING/CONSTRUCTION COST	32.2900%

EDIT DATE: APRIL 8, 1991---LAP

ATTACHMENT 9

AS-BUILT DRAWINGS

ATTACHMENT 10

PHOTOGRAPHS

PHOTO LOG

Cascade County Small Prospects AMR Project

Site: No. 5 Coulee

Photo	Photograph Description
1.	South site, east adit - spoils disposal area
2.	South site, east adit
3.	South site, lime application on west adit
4.	South site, lime application
5.	South site, lime application and incorporation
6.	South site, lime application
7.	North site, prior to reclamation
8.	Riprap sealed adit, north site
9.	North site, view from above adit cut
10.	Adit seal
11.	North site, view east
12.	North site, opening
13.	North site, excavation of spoils disposal area
14.	North site, spoils disposal and grading
15.	North site, view from above adit
16.	North site, topsoil stockpile
17.	North site, adit opening
18.	North site, adit opening reclaimed
19.	North site, view to west
20.	South site, fence corner typical
21.	South site, west adit - topsoil replaced
22.	South site, west adit - topsoil replaced, view from below
23.	South site, west adit - spreading mulch
24.	South site, mulching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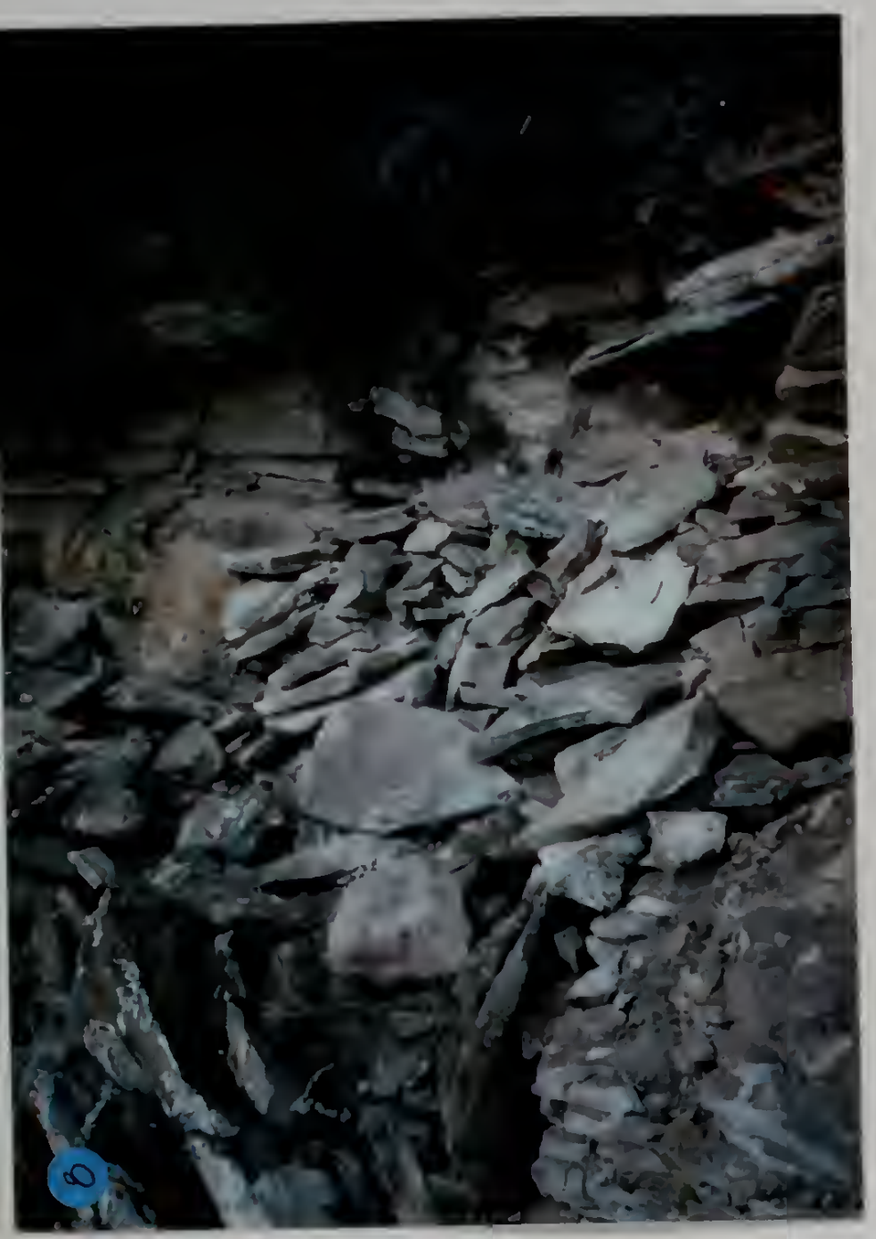
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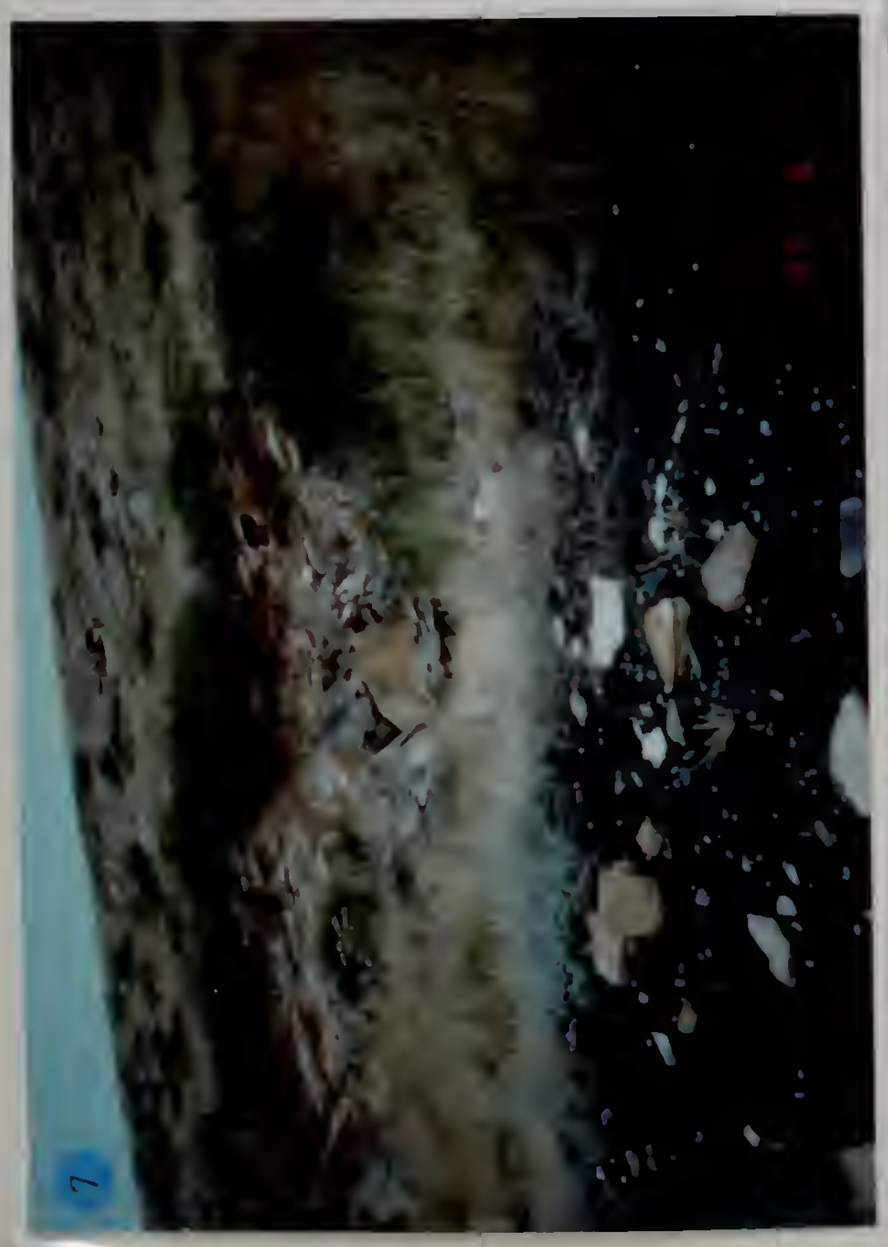
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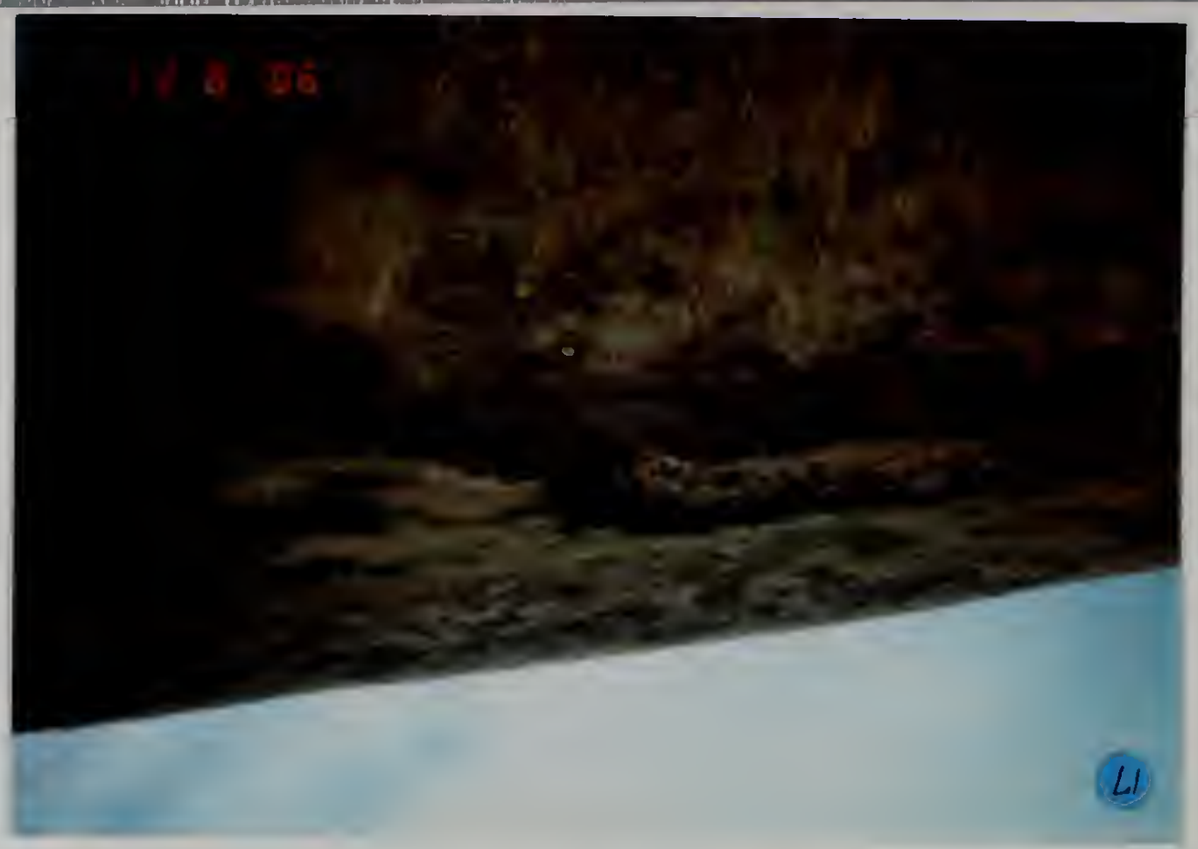
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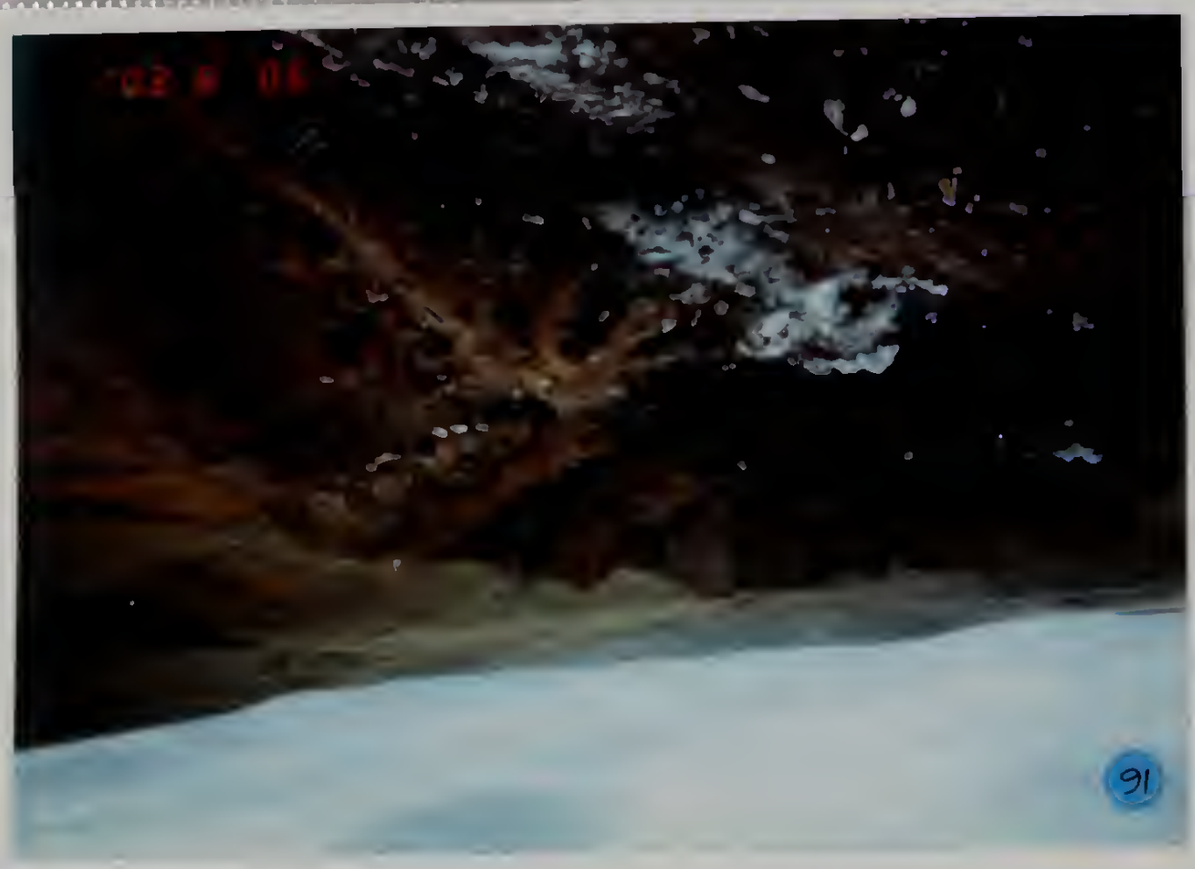
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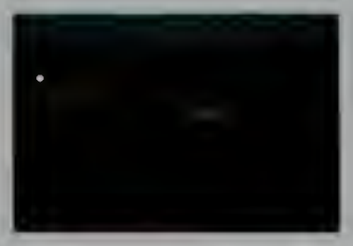




PHOTO LOG

Cascade County Small Prospects AMR Project

Site: Chicken Coulee Reclamation Site

Photo	Photograph Description
1.	Disposal site preparation, topsoil stripping
2.	Disposal site
3.	Placing spoils in disposal site
4.	Spoil disposal
5.	Topsoil stockpiles, limed spoils
6.	Liming disposal site
7.	Lime incorporation
8.	Topsoil replacement
9.	Completing topsoil replacement


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Preparing [illegible] spoils pile

PHOTO LOG

Cascade County Small Prospects AMR Project

Site: Cottonwood Coulee

Photo	Photograph Description
1.	Mule barn entrance during demolition
2.	Mule barn debris disposal
3.	Inside wall of barn, retaining wall
4.	Retaining wall disposal
5.	Mule barn retaining wall removed
6.	Cottonwood Coulee main spoils pile
7.	Preparing adit disposal area
8.	Stripping topsoil, preparing adit
9.	Fence corner
10.	Topsoil replaced, fence construction
11.	Mulch and hand seeding
12.	Site mulching

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7. Spoil disposal and contouring

8. Perforated and solid pipe placing

PHOTO LOG

Cascade County Small Prospects AMR Project

Site: Tracy Reclamation Site

Photo	Photograph Description
1.	Aerial view prior to reclamation
2.	Aerial view prior to reclamation
3.	East adit opening before reclamation
4.	West adit opening and mine drainage
5.	Adit openings perspective view, pre-reclamation
6.	Spoil disposal activity
7.	Spoil disposal and contouring
8.	Transpiration pond site
9.	Mine drainage from west adit
10.	Spoils removal and disposal
11.	Tank location site preparation
12.	Tank base construction with riprap
13.	Spoils disposal
14.	Spoils disposal
15.	Transpiration pond excavation
16.	Deposition area, spoil disposal completed
17.	Transpiration pond excavation
18.	Transpiration pond construction
19.	Trench excavation, tank discharge line to pond
20.	Perforated interceptor and solid discharge pipe
21.	Tank discharge line: trench excavation
22.	Interceptor pipe: trench excavation
23.	Seep interceptor outfall: trench excavation
24.	Site overview, view to northwest
25.	Drainage fabric and base aggregate installation
26.	Seepage interceptor pipe installation
27.	Interceptor pipe placement
28.	Interceptor pipe drain aggregate backfill
29.	Drain aggregate backfill
30.	Drain aggregate, fabric and outfall trench
31.	Perforated and solid pipe material
32.	Seepage interceptor outfall pipe backfill
33.	Transpiration pond, view southwest
34.	Transpiration pond, view west
35.	Transpiration pond riprapped spillway
36.	Outfall pipe in operation
37.	Tank discharge pipe to pond, riprapped channel
38.	Transpiration pond and tank
39.	Topsoil replacement
40.	Auxiliary stocktank supply line excavation
41.	Auxiliary stocktank installation
42.	Seeding, mulching, tracking
43.	Completed site reclamation
44.	Reclaimed adit, riprap sealed


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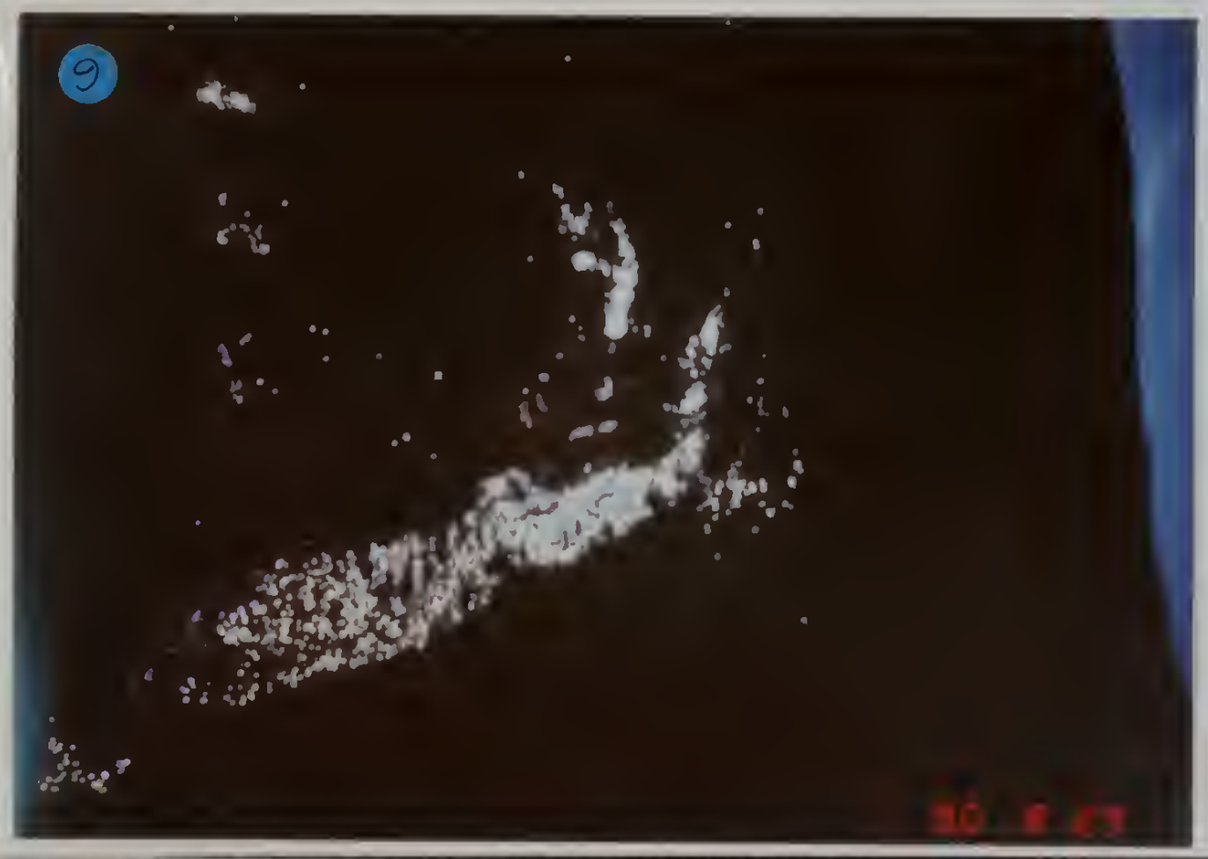
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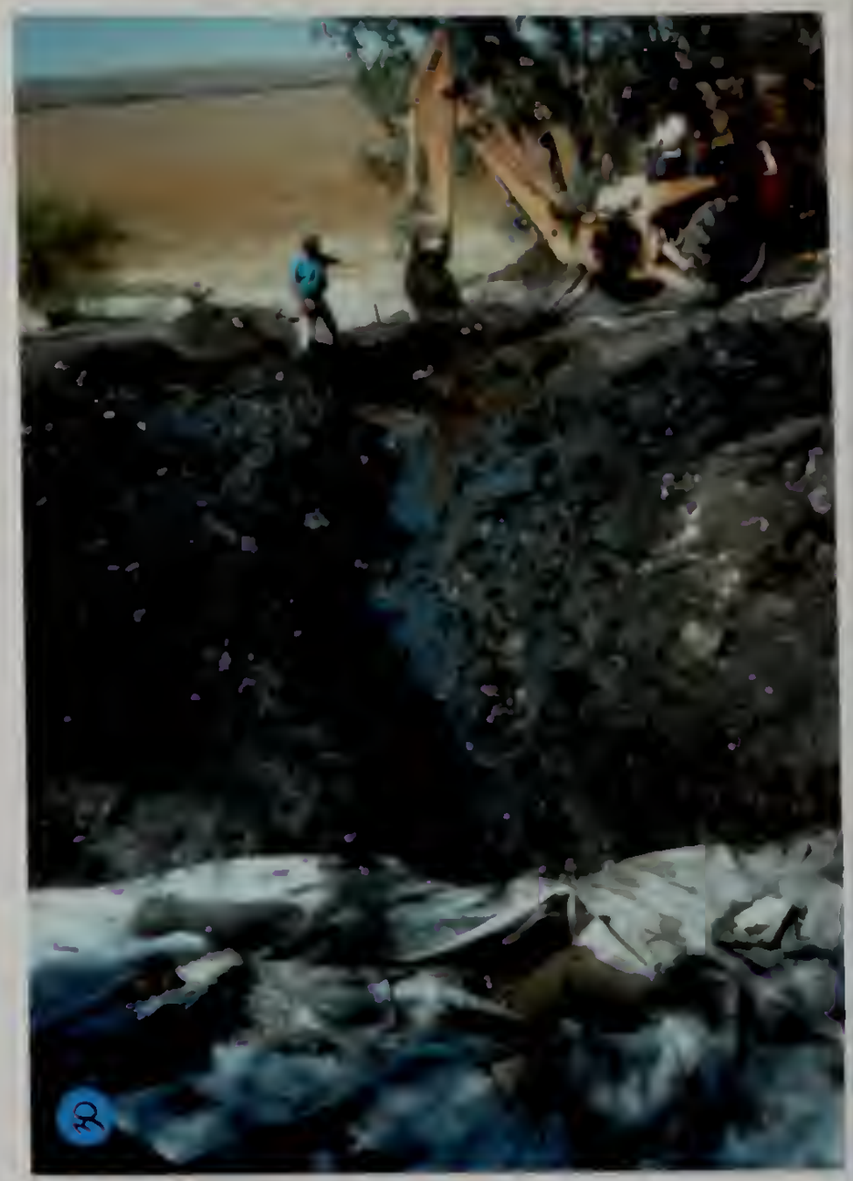


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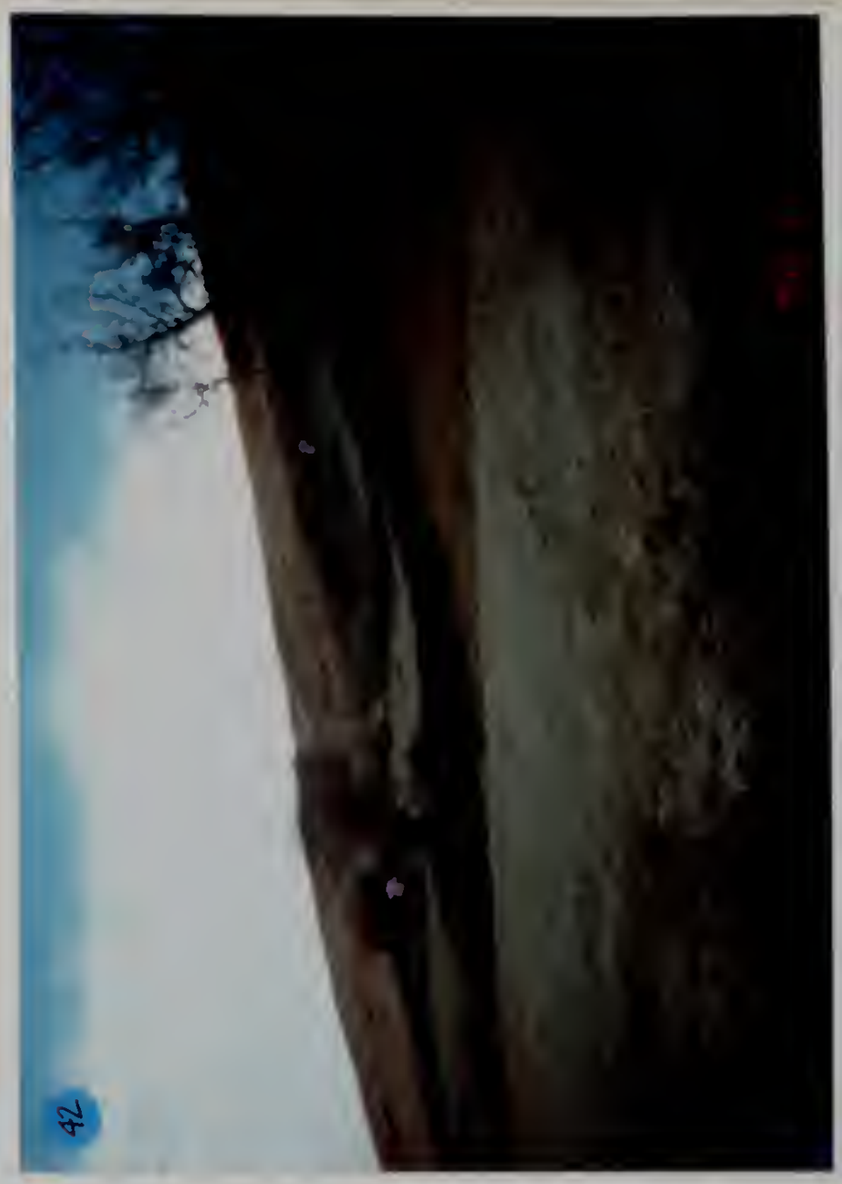
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6. Site #1 contouring spoils view from above

PHOTO LOG

Cascade County Small Prospects AMR Project

Site: Centerville Reclamation Sites

Photo	Photograph Description
1.	Subsidence at Centerville site #1
2.	Preparing adit for closure, topsoil stockpiling
3.	Centerville site #1, view from above adit
4.	Centerville site #2, spoils deposition site
5.	Site #2 spoils disposal
6.	Site #1 contouring spoils view from above
7.	Site #2, view from below, lime in place
8.	Creek bottom site #3 preparing disposal site
9.	Site #3 view from above spoils disposal
10.	Limed spoils, site #2
11.	Centerville site #1 topsoil replacement
12.	Topsoil contouring and grading, site #1
13.	Creek bottom site #3 removing spoils
14.	Site #3 spoil disposal area and topsoil stockpiles
15.	Abandoned creek bottom, spoils removed
16.	Site #3 disposal area
17.	Preparing disposal site, Centerville #5 adit
18.	Main spoils pile at site #5
19.	Site #5, spoils removed view north
20.	Site #5, view south

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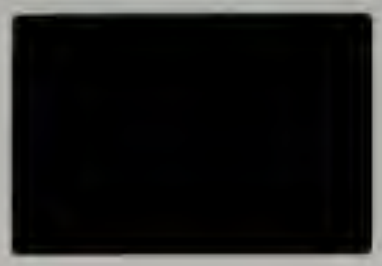

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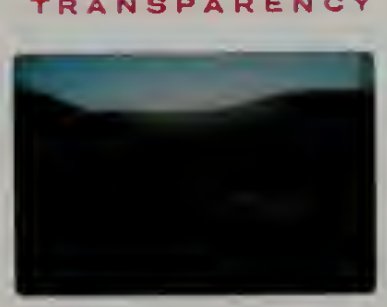

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Shield and drawdown testing

Yield measurement

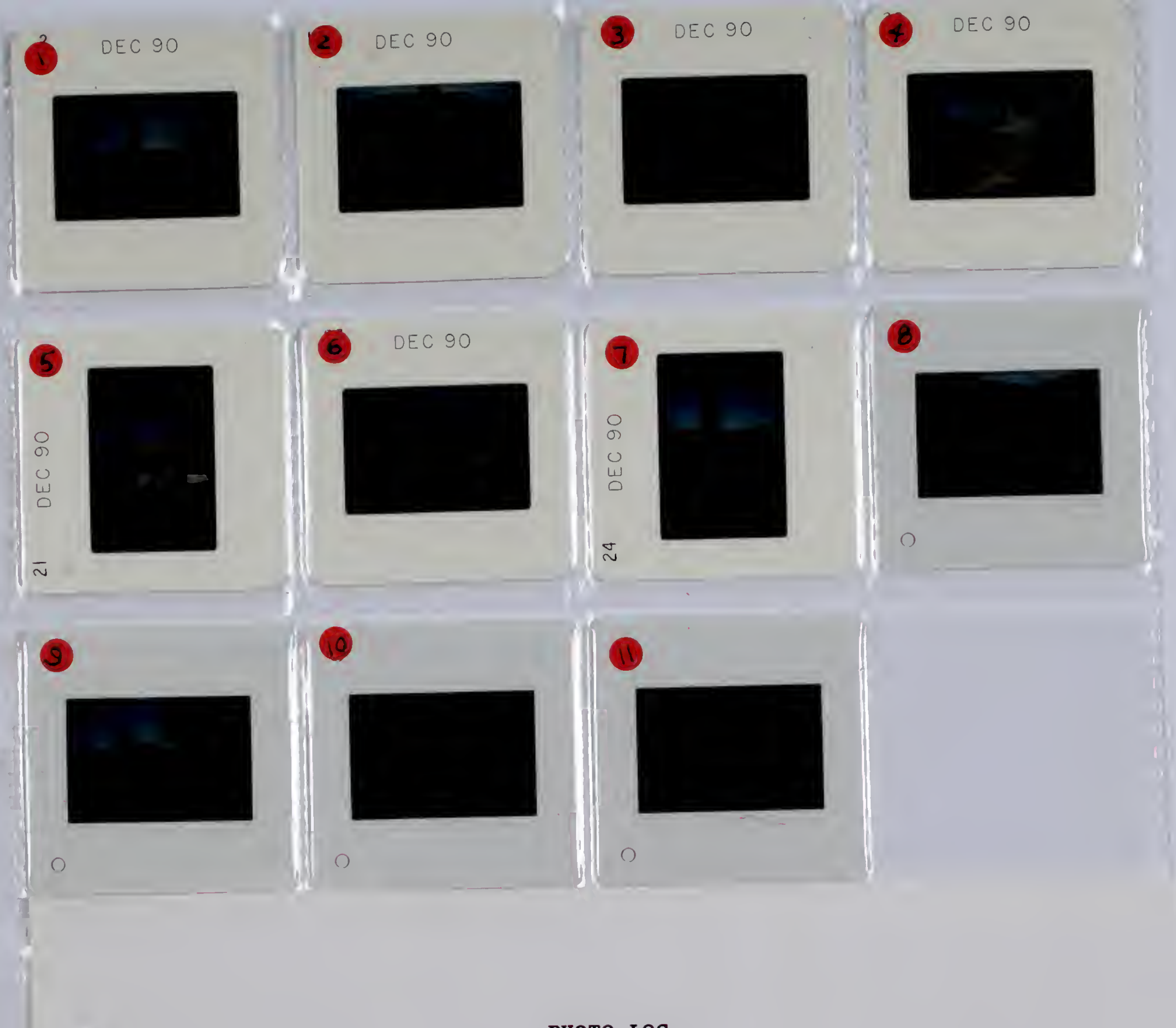

PHOTO LOG

Cascade County Small Prospects AMR Project

Site: Centennial Park Well

Photo	Photograph Description
1.	Equipment: Gardner Denver
2.	Preparation to set steel well casing
3.	Welding casing sections
4.	Encountering first major aquifer
5.	Well development
6.	Drilling
7.	Yield measurement
8.	Yield and drawdown testing
9.	Yield drawdown
10.	Control box and well
11.	Completed well

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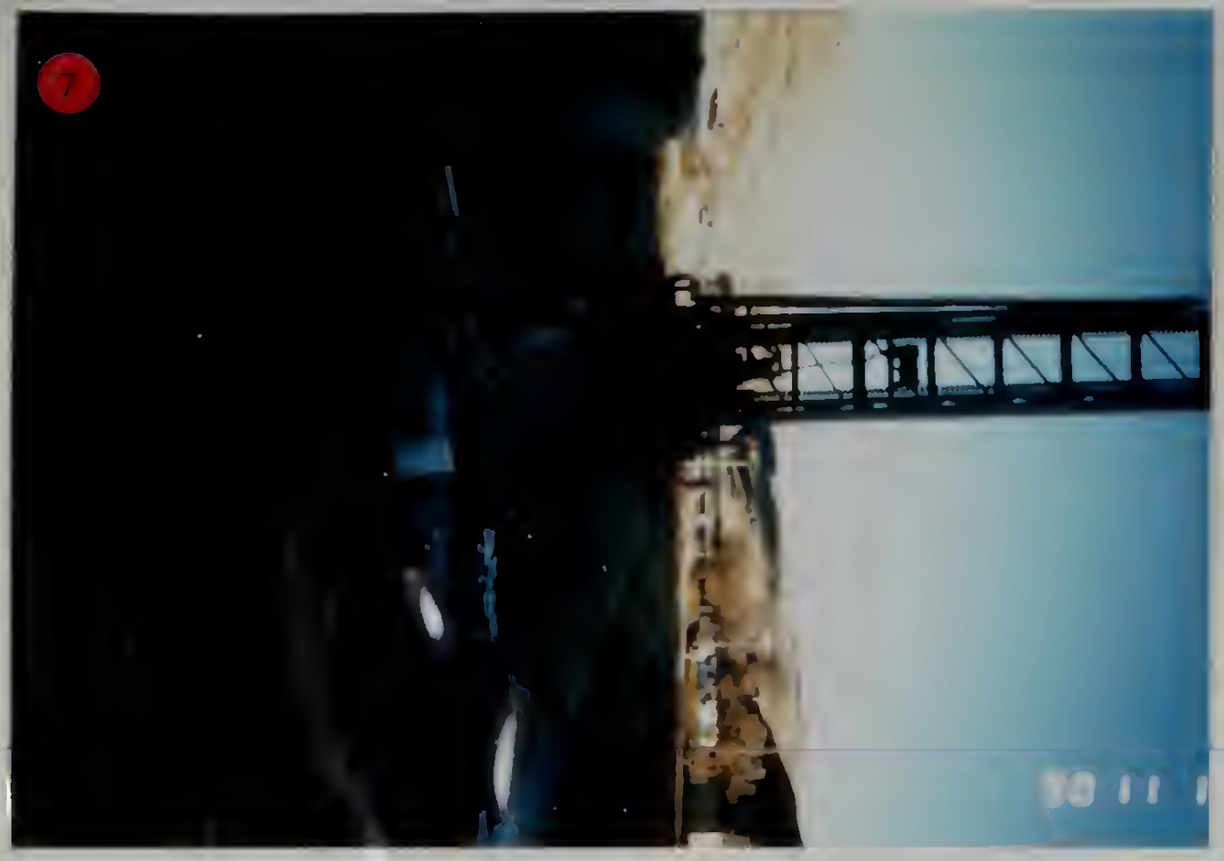
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